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D02/01 – Remediation Report For LD-003 (Interim)

Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works

Reference No. WO014 (YL/2017/03)
Prepared for Sang Hing – Kuly Joint Venture
28 February 2020

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1 INTRODUCTION

1.1 Background

1.1.1 In 2007, the Chief Executive, in his Policy Address, announced the development at Lok Ma Chau Loop (the Loop) as one of the ten major infrastructure projects for economic growth. As a joint project of the Hong Kong Special Administrative Region (HKSAR) Government and Shenzhen Municipal Government, the Loop's development shall meet the future development needs of both cities and consolidate the strategic position of Hong Kong and Shenzhen in the Pan-Pearl River Delta region.

1.1.2 The Development of the Lok Ma Chau Loop (hereafter called “the Project”) is classified as a Designated Project (DP) under the Environmental Impact Assessment Ordinance (EIAO). An Environmental Impact Assessment (EIA) Report was therefore conducted to assessing the environmental impacts including land contamination and the EIA Report was approved with conditions on 25 October 2013 by the Authority of EIAO. An Environmental Permit (EP) with a number EP-477/2013 held by CEDD was granted on 22 November 2013. An Environmental Team (ET) headed by an ET Leader and an Independent Environmental Checker (IEC) were appointed pursuant to Conditions 2.1 and 2.2 of the EP, and mitigation of land contamination implication to the Project shall be carried out in accordance with Conditions 2.15 to 2.17 of the EP.

1.1.3 Three reports related to land contamination were completed and appended to the approved EIA Report:

1. Contamination Assessment Plan (CAP) describing the methodology of Site Investigation and soil/groundwater test in accordance with the Risk-Based Remediation Goals (RBRGs) of EPD.
2. A combined Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) summarising the site investigation, laboratory test results, interpretation of the test results and recommendation of land remediation.
3. Supplementary Contamination Assessment Report (SCAR) and Remediation Action Plan (RAP) updating the estimation of the quantity of contaminated soil based on the results of stage 2 site investigation.

1.1.4 In accordance with the CAR, Arsenic levels of the soil samples taken from five boreholes were found to have exceeded the relevant RBRGs limits and the report concluded that five zones, namely LD-001, LD-002, LD-003, LD-004 and LD-005 as shown on ***Figure 1.1***, were contaminated by Arsenic. It was recommended in the SCAR and the RAP that the Arsenic-contaminated soil with a total amount of approximately 57,444m^3 should be treated by cement solidification/stabilisation, i.e. excavate the contamination soil from underground and mix with proper ratio of cement, for on-site backfilling within the Loop.

1.1.5 Contract No. YL/2017/03: Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works (the Contract) was awarded to Sang Hing – Kuly Joint Venture (SKJV) in June 2018. Black & Veatch Hong Kong Limited (B&V) is the consultant of Agreement No. CE 5/2014 (CE) Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works – Design and Construction and *Project Manager/Supervisor* of the Contract. SMEC Asia Ltd (SMEC) has been engaged by SKJV as the Land Contamination Specialist (LCS) for the Contract to provide advice and prepare this interim Remediation Report (RR).

1.1.6 A Re-appraisal Report enclosed in B&V’s letter (B&V’s ref.: 184794-0481) recommending implementation of all land remediation works as recommended in the aforementioned CAR/RAP was submitted to EPD on 28 November 2018 in accordance with Condition 2.15 of the EP. EPD confirmed no further comment on the Re-appraisal Report on 8 April 2019 (EPD’s ref.: ( ) in EP2/G/S3/152 Pt.4).

1.1.7 As such, all recommendations of the CAR/RAP remain unchanged and shall be implemented. A Remediation Report (RR) providing details on the remediation works being carried out, types and volume of contaminated soil, standards and levels of treatment, and locations of all disposal sites (including record of disposal) shall be submitted to the EIAO Authority no later than one month after the completion of the remediation works pursuant to Condition 2.16 of EP-477/2013. As required in the EP, the RR shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the EIA Report prior to being submitted to the EIAO Authority.

1.1.8 The RAP stipulated that no construction work at the identified contaminated areas shall be carried out prior to the RR being approved by the EIAO Authority. In order to allow carrying out of construction work at LD-003 after remediation of the contaminated soil in this area, prior to completion of remediation at the remaining contaminated areas, separate RR for each of the contaminated areas LD-001 to LD-005 will be prepared and submitted to the EIAO Authority for approval separately in accordance with Condition 2.16 of EP-477/2013.

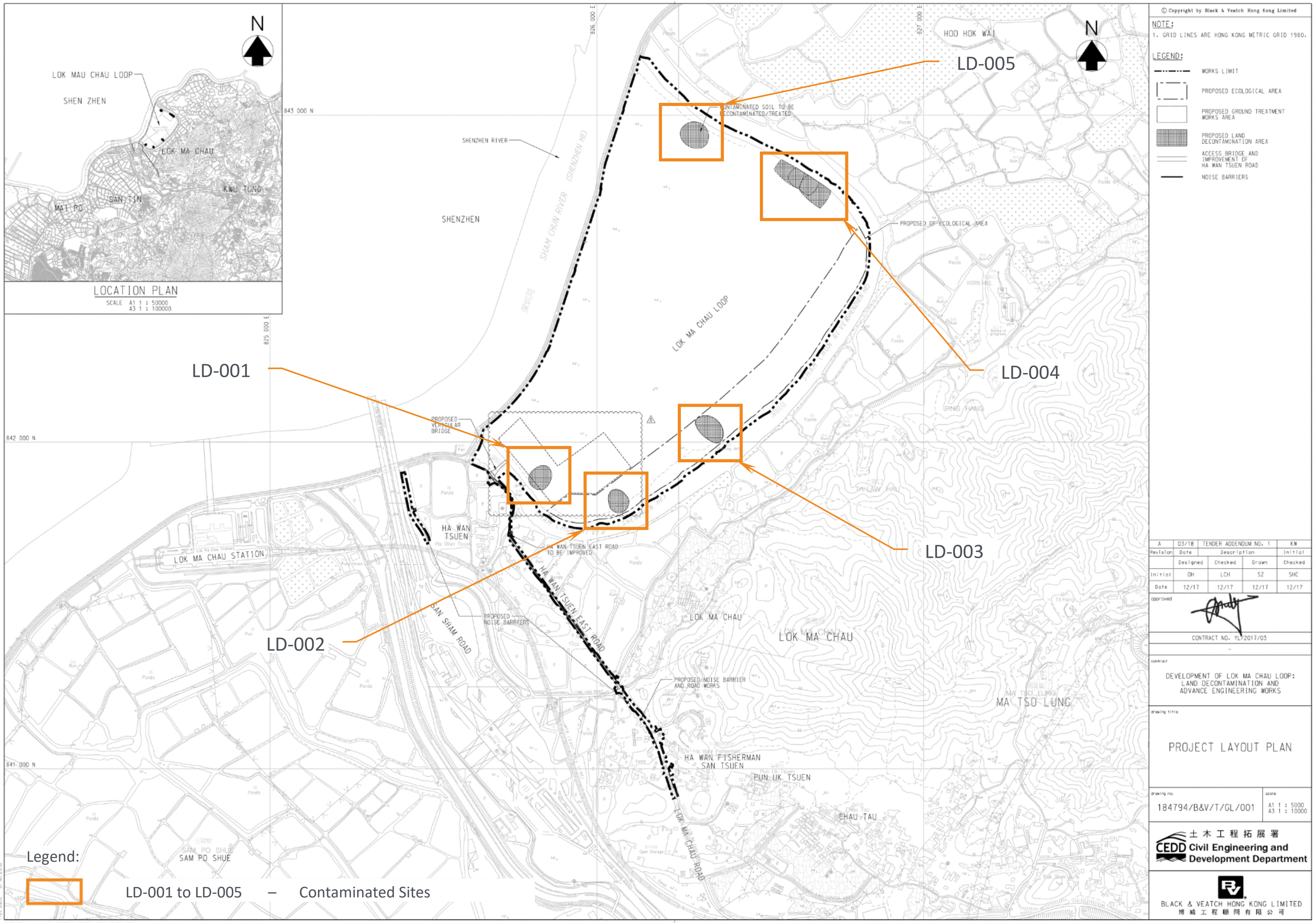
1.1.9 The remediation work was completed on 15 January 2020 upon the last testing result of treated soil was obtained. This interim RR for LD-003 is to record the results from closure assessment and solidification/stabilisation test for soil remediation works at LD-003, and the backfilling strategy of LD-003.

1.2 Objective

1.2.1 The objectives of this interim RR are to:

- Delineate the contamination extent at LD-003 and ensure complete removal of contaminated soil for remediation.
- Demonstrate that all contaminated soil excavated from LD-003 has been remediated by cement solidification/ stabilisation.
- Indicate the temporary storage and permanent placement locations of treated soil for LD-003.

Figure 1.1: Location of Five Contaminated Sites in Lok Ma Chau Loop


N
LOK MAU CHAU LOOP
SHEN ZHEN
LOK MA CHAU
KWU TUNG
SAN TIN
MAI PO
LOCATION PLAN
SCALE A1 1 : 50000
A3 1 : 100000
LD-001
LD-002
LD-003
LD-004
LD-005
CONTAMINATED SOIL TO BE DECONTAMINATED/TREATED
SHENZHEN RIVER
SHENZHEN
SHAM CHUN RIVER
LOK MA CHAU LOOP
PROPOSED OFF ECOLOGICAL AREA
PROPOSED VEHICULAR BRIDGE
HA WAN TSUEN
LOK MA CHAU STATION
HA WAN TSUEN EAST ROAD TO BE IMPROVED
SAN SHAM ROAD
PROPOSED NOISE BARRIERS
PROPOSED NOISE BARRIER AND ROAD WORKS
HA WAN TSUEN EAST ROAD
LOK MA CHAU
MA TSO LUNG
HA WAN FISHERMAN SAN TSUEN
PUN UK TSUEN
CHAU TAU
SAM PO SHUE
LOK MA CHAU ROAD
HOO HOK WAI
843 000 N
842 000 N
841 000 N
825 000 E
826 000 E
827 000 E
© Copyright by Black & Veatch Hong Kong Limited
NOTE:
1. GRID LINES ARE HONG KONG METRIC GRID 1980.
LEGEND:
WORKS LIMIT
PROPOSED ECOLOGICAL AREA
PROPOSED GROUND TREATMENT WORKS AREA
PROPOSED LAND DECONTAMINATION AREA
ACCESS BRIDGE AND IMPROVEMENT OF HA WAN TSUEN ROAD
NOISE BARRIERS
A 03/18 TENDER ADDENDUM NO. 1 KW
Revision Date Description Initial
Designed Checked Drawn Checked
Initial DH LCH SZ SHC
Date 12/17 12/17 12/17 12/17
approved
CONTRACT NO. YL/2017/03
contract
DEVELOPMENT OF LOK MA CHAU LOOP: LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
drawing title
PROJECT LAYOUT PLAN
drawing no.
184794/B&V/T/GL/001
scale
A1 1 : 5000
A3 1 : 10000
土木工程拓展署
CEDD Civil Engineering and Development Department
BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司
Legend:
LD-001 to LD-005 – Contaminated Sites

2 CLOSURE ASSESSMENT

2.1 Delineation of Contamination at LD-003

2.1.1 Method for delineation of contaminated soil in the five contamination zones was defined in Figure 6.1 of "Appendix A" of the SCAR. The total quantity of contaminated soil was estimated to be approximately 7,484m^3 at LD-003 (also name as A-S20 in the CAR) as summarised in Table 4.1 and Figure 4.1.3 of the SCAR. After the clean top soil was removed, the contaminated soil at the depth identified in approved SCAR was excavated for cement solidification/ stabilisation. Figure 4.1 of the SCAR is contained in ***Appendix A*** to indicate the location of each contamination zone and estimated quantities of contaminated material to be excavated for treatment in each contamination zone.

2.1.2 In order to confirm all contaminated soil had been excavated from LD-003, confirmatory samples were taken from sidewalls of the excavated pit at LD-003 with a lateral spacing of not more than 15m. Confirmatory samples were also collected at the bottom of excavated pit at LD-003 on grid spacing not larger than 15m x 15m (i.e. one sample per approximately every 225m^2) as recommended in the RAP. Locations of confirmatory sampling at the excavation pit in LD-003 are provided in ***Figure 2.1***.

2.1.3 With reference to the CAR/RAP, the ground level of investigation borehole for LD-003 was recorded at +4.57mPD and the Arsenic-contaminated soil for LD-003 was concluded to be between 2.50mbgl to 4.0mbgl. That means contaminated soil should be found at +0.57mPD to +2.07mPD based on ground level at +4.57mPD. Confirmatory samples were therefore collected at +0.57mPD to ensure consistency with the CAR.

2.1.4 Confirmatory soil sampling was carried out at LD-003 from 8 to 24 October 2019. A total of 29 samples were collected from the pit base and 18 samples were collected at the sidewalls of excavation pit. Besides the aforementioned confirmatory soil samples, three duplicate soil samples (i.e. one for sidewall and two for pit base) and six equipment blank samples were also taken for QA/QC purpose. Soil samples were collected under supervision of LCS and delivered to ALS Technichem (HK) Pty Limited (ALS) for testing of Arsenic concentrations. ALS is a laboratory accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS).

2.1.5 Soil confirmatory and QA/QC sampling works, and laboratory analytical results are summarised in ***Table 2.1***. Test reports are enclosed in ***Appendix B***.

2.1.6 To summarise, a total of 47 confirmatory soil samples (which did not include the samples of duplicate sample and equipment blank) were collected from LD-003 to analysis their Arsenic concentration. In accordance with the laboratory test results, the Arsenic concentrations of all 47 confirmatory samples were found to be below 21.8 mg/kg at dry soil condition, which is the Risk Based Remediation Goal (RBRG) criterion for Rural Residential Use. Based on the laboratory analysis results, it is confirmed that all contaminated soil as designated at LD-003 had been excavated.

2.1.7 The details of the contaminated soil at LD-003 excavated, treated and backfilled were summarised below:

- Contaminated Soil Excavated: 7,582m^3
- Treated Soils after cement solidification/stabilisation treatment: 9,098m^3
- Treated Soil back-filled on site: 0m^3
- Treated Soil temporary stockpiled to be back-filled on site: 9,098m^3

Table 2.1: Summary of Confirmatory Sampling Results

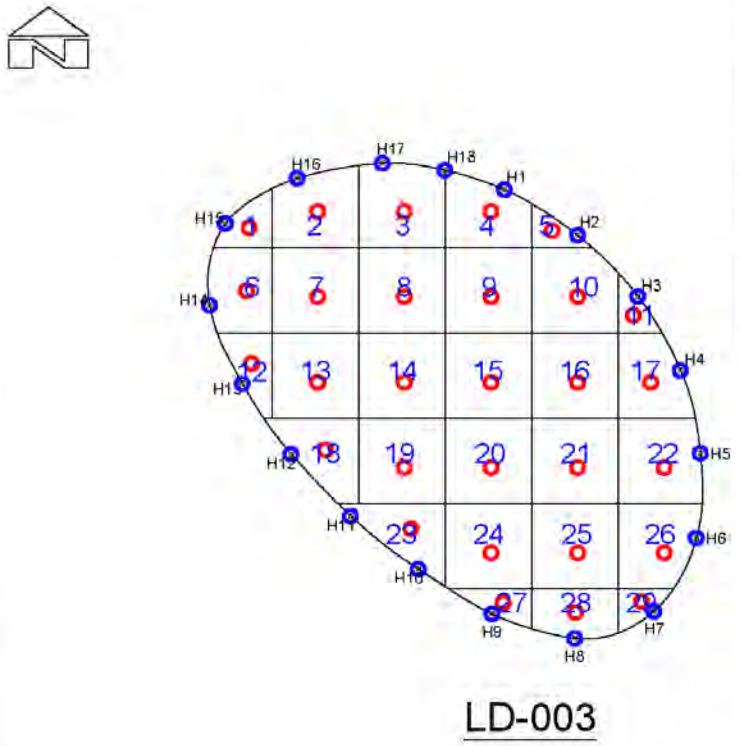
CONTAMINATION ZONE	LOCATION OF SAMPLES	GRID NO.	SAMPLE ID	CONFIRMATORY SAMPLING DEPTH (mPD)	ANALYTICAL RESULTS FOR ARSENIC		RBRG LEVEL (mg/kg)
					Dry Soil Sample (mg/kg)	Water Sample (µg/L)	
Confirmatory Soil Samples							
LD-003 (AS-020 in CAR)	Base	1	TCLP-Area 1 Contaminated soil	+0.57	14	No water encountered	21.8
		2	TCLP-Area 2 Contaminated soil	+0.57	15		21.8
		3	TCLP-Area 3 Contaminated soil	+0.57	15		21.8
		4	TCLP-Area 4 Contaminated soil	+0.57	10		21.8
		5	TCLP-Area 5 Contaminated soil	+0.57	16		21.8
		6	TCLP-Area 6 Contaminated soil	+0.57	16		21.8
		7	TCLP-Area 7 Contaminated soil	+0.57	15		21.8
		8	TCLP-Area 8 Contaminated soil	+0.57	14		21.8
		9	TCLP-Area 9 Contaminated soil	+0.57	11		21.8
		10	TCLP-Area 10 Contaminated soil	+0.57	9		21.8
		11	TCLP-Area 11 Contaminated soil	+0.57	12		21.8
		12	TCLP-Area 12 Contaminated soil	+0.57	17		21.8
		13	TCLP-Area 13 Contaminated soil	+0.57	13		21.8
		14	TCLP-Area 14 Contaminated soil	+0.57	15		21.8
		15	TCLP-Area 15 Contaminated soil	+0.57	15		21.8
		16	TCLP-Area 16 Contaminated soil	+0.57	16		21.8
		17	TCLP-Area 17 Contaminated soil	+0.57	12		21.8
		18	TCLP-Area 18 Contaminated soil	+0.57	21		21.8
		19	TCLP-Area 19 Contaminated soil	+0.57	14		21.8

CONTAMINATION ZONE	LOCATION OF SAMPLES	GRID NO.	SAMPLE ID	CONFIRMATORY SAMPLING DEPTH (mPD)	ANALYTICAL RESULTS FOR ARSENIC		RBRG LEVEL (mg/kg)
					Dry Soil Sample (mg/kg)	Water Sample (µg/L)	
LD-003 (AS-020 in CAR)	Base	20	TCLP-Area 20 Contaminated soil	+0.57	16	No water encountered	21.8
		21	TCLP-Area 21 Contaminated soil	+0.57	15		21.8
		22	TCLP-Area 22 Contaminated soil	+0.57	18		21.8
		23	TCLP-Area 23 Contaminated soil	+0.57	16		21.8
		24	TCLP-Area 24 Contaminated soil	+0.57	15		21.8
		25	TCLP-Area 25 Contaminated soil	+0.57	16		21.8
		26	TCLP-Area 26 Contaminated soil	+0.57	16		21.8
		27	TCLP-Area 27 Contaminated soil	+0.57	21		21.8
		28	TCLP-Area 28 Contaminated soil	+0.57	14		21.8
		29	TCLP-Area 29 Contaminated soil	+0.57	16		21.8
	Sidewall	H1	TCLP-LD003-H1 Contaminated soil	+0.57	12	No water encountered	21.8
		H2	TCLP-LD003-H2 Contaminated soil	+0.57	12		21.8
		H3	TCLP-LD003-H3 Contaminated soil	+0.57	11		21.8
		H4	TCLP-LD003-H4 Contaminated soil	+0.57	10		21.8
		H5	TCLP-LD003-H5 Contaminated soil	+0.57	9		21.8
		H6	TCLP-LD003-H6 Contaminated soil	+0.57	7		21.8
		H7	TCLP-LD003-H7 Contaminated soil	+0.57	17		21.8
		H8	TCLP-LD003-H8 Contaminated soil	+0.57	16		21.8
		H9	TCLP-LD003-H9 Contaminated soil	+0.57	15		21.8
		H10	TCLP-LD003-H10 Contaminated soil	+0.57	14		21.8
		H11	TCLP-LD003-H11 Contaminated soil	+0.57	6		21.8

CONTAMINATION ZONE	LOCATION OF SAMPLES	GRID NO.	SAMPLE ID	CONFIRMATORY SAMPLING DEPTH (mPD)	ANALYTICAL RESULTS FOR ARSENIC		RBRG LEVEL (mg/kg)
					Dry Soil Sample (mg/kg)	Water Sample (µg/L)	
LD-003 (AS-020 in CAR)	Sidewall	H12	TCLP-LD003-H12 Contaminated soil	+0.57	18	No water encountered	21.8
		H13	TCLP-LD003-H13 Contaminated soil	+0.57	12		21.8
		H14	TCLP-LD003-H14 Contaminated soil	+0.57	15		21.8
		H15	TCLP-LD003-H15 Contaminated soil	+0.57	21		21.8
		H16	TCLP-LD003-H16 Contaminated soil	+0.57	11		21.8
		H17	TCLP-LD003-H17 Contaminated soil	+0.57	10		21.8
		H18	TCLP-LD003-H18 Contaminated soil	+0.57	15		21.8
QA/QC Samples							
LD-003 (AS-020 in CAR)	Equipment Blank	LD-003 Water Sample for Equipment	Equipment Blank	N/A	N/A	<10	N/A
			Equipment Blank	N/A	N/A	<10	N/A
			Equipment Blank	N/A	N/A	<10	N/A
			Equipment Blank	N/A	N/A	<10	N/A
			Equipment Blank	N/A	N/A	<10	N/A
			Equipment Blank	N/A	N/A	<10	N/A
	Duplicate from Base	11	TCLP-Area 11(1) Contaminated soil	+0.57	12	No water encountered	21.8
		25	TCLP-Area 22(1) Contaminated soil	+0.57	17		21.8
	Duplicate from Side Wall	H6	LD003-H6 (1)	+0.57	7		21.8

Figure 2.1: Location of Confirmatory Sampling of LD-003

PORTION	AREA (M2)
1	67.5
2	192
3	217
4	170
5	43
6	160.5
7	225
8	225
9	225
10	215
11	42
12	87
13	225
14	225
15	225
16	225
17	162.5
18	160
19	225
20	225
21	225
22	212.5
23	146.5
24	225
25	225
26	190
27	57
28	123
29	43.5



LD-003		
EGL		+4.57 mPD
CONTAMINATED SOIL		+0.57 to +2.07mPD
Pt	EASTING	NORTHING
H1	826352.596	842076.143
H2	826365.256	842068.171
H3	826375.657	842057.417
H4	826383.060	842044.410
H5	826386.495	842029.874
H6	826385.812	842014.978
H7	826378.463	842002.129
H8	826364.739	841997.356
H9	826350.431	842001.663
H10	826337.671	842009.521
H11	826325.939	842018.836
H12	826315.632	842029.727
H13	826307.195	842042.091
H14	826301.572	842055.884
H15	826304.258	842070.221
H16	826316.719	842078.181
H17	826331.445	842080.838
H18	826342.265	842079.590

PIT BASE POINT NOS.	COORDINATES	
	EASTING	NORTHING
1	826308.3449	842069.465
2	826320.1913	842072.3316
3	826335.1913	842072.3316
4	826350.1913	842072.3316
5	826360.8003	842068.9247
6	826307.8683	842058.4158
7	826320.1913	842057.3316
8	826335.1913	842057.3316
9	826350.1913	842057.3316
10	826365.1913	842057.3316
11	826374.8543	842054.0692
12	826308.7724	842045.6306
13	826320.1913	842042.3316
14	826335.1913	842042.3316
15	826350.1913	842042.3316
16	826365.1913	842042.3316
17	826377.8339	842042.3316
18	826321.5496	842030.4232
19	826335.1913	842027.3316
20	826350.1913	842027.3316
21	826365.1913	842027.3316
22	826380.1913	842027.3316
23	826336.3304	842016.5877
24	826350.1913	842012.3316
25	826365.1913	842012.3316
26	826380.1913	842012.3316
27	826352.296	842003.5859
28	826364.8302	842001.6714
29	826376.2207	842003.7764

LEGEND

- ○ PIT BASE LOCATION FOR CONFIRMATORY TEST
- ○ HORIZONTAL LOCATION FOR CONFIRMATORY TEST

PROJECT: DEVELOPMENT OF LOK MA CHAU LOOP:
LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
YL/2017/03

生興-豐利聯營
Sang Hing - Kuly Joint Venture

DRAWING TITLE:
PROPOSED CONFIRMATORY TESTING LOCATION FOR HOTSPOT LD-003

Dwg No : LD-003-01
Design By :
Rev.
Scale : 1:1000 @ A4
Drawn By :
Date : 10-10-2019

Source: provided by SKJV

3 SOIL REMEDIATION WORKS

3.1 Pilot Test

3.1.1 A pilot test to determine and confirm the appropriate soil and cement mixing ratio for achieving the treatment targets was conducted on 8 May 2019 with a contaminated soil : cement : sand ratio of 1:0.1:0.1 (or 10:1:1). Toxicity Characteristics Leaching Procedure (TCLP) test was conducted for the solidified soil sample. Unconfined Compressive Strength (UCS) of the cement-solidified soil sample was also tested to ensure compliance with the minimum requirement of 1MPa as recommended in the RAP.

3.1.2 The UCS results were found to be much higher than the criterion of 1MPa for the contaminated soil solidified using the aforementioned ratio. Therefore, an additional pilot test was conducted on 16 August 2019 to amend cement ratio from 10% to 7.5%.

3.1.3 The pilot test details and results are summarised in ***Table 3.1***, and the submissions are enclosed in ***Appendix C***.

Table 3.1: Cement Solidification/Stabilisation Pilot Test Details and Results

	SOIL	CEMENT	SAND
Pilot Test on 8 May 2019			
Quantity Used, kg	20	2	2
Soil : Cement : Sand		10:1:1	
TCLP Test Result for Arsenic, mg/L		<0.1	
UCS, MPa		1.571	
Pilot Test on 16 August 2019			
Quantity Used, kg	20	1.5	2
Soil : Cement : Sand		10:0.75:1	
TCLP Test Result for Arsenic, mg/L		<0.1 (Trial 1 and Trial 2)	
UCS, MPa		4.799 (Trial 1) and 3.572 (Trial 2)	

3.1.4 As shown in ***Table 3.1***, the pilot test samples' TCLP test results for Arsenic were found to be below Limit of Reporting (LOR) of 0.1mg/L which complies with the treatment target of 5mg/L as recommended in Table 7.3 of the RAP. The UCS test results of the pilot test samples were found to be 1.571– 4.799MPa, which is above the minimum required UCS of 1MPa. Therefore, both the Soil : Cement : Sand ratios of 10:1:1 and 10:0.75:1 can be adopted for solidifying the contaminated soil.

3.2 Cement Solidification / Stabilisation

3.2.1 7,582m^3 of Arsenic-contaminated soil was excavated from LD-003. All contaminated soil from LD-003 were transported to the designated mixing area within the Lok Ma Chau Loop for cement solidification / stabilisation as stipulated in the RAP.

3.2.2 One set of TCLP test for Arsenic and UCS test were conducted for every 100m^3 of the treated soil and each batch of treated soil was labelled as S1, S2, S3…….etc. All TCLP test results for Arsenic were found to be below the treatment target of 5mg/L for Arsenic. All UCS test results were found to be above 1MPa, which fulfilled the UCS minimum requirement of 1MPa as recommended in the RAP.

3.2.3 The test results are summarised in ***Table 3.2*** and the laboratory reports are provided in ***Appendix D***.

3.2.4 All treated soils were considered to be satisfactory for on-site backfilling in accordance with the approved RAP. 9,098m^3 of treated soils were generated after treatment in which 9,098m^3 were temporarily stored at site area inside the loop as shown in ***Appendix E*** and to be backfilled in LD-005, after closure assessment confirms that all contaminated materials have been fully removed from LD-005. All the temporarily stored treated soils were lined with impermeable sheeting and bunded, and covered by impervious sheeting.

3.2.5 After confirming all the confirmatory test results indicated in ***Table 2.1*** complying with the Arsenic RBRG criterion, i.e., contaminated soil confined between +0.57mPD to +2.07mPD recommended in the CAR/RAP, and treated soils complying with the treatment criteria as indicated in ***Table 3.2*** below, all the treated soils for LD-003 are to be backfilled to the locations shown in ***Appendix E.*** The photographs are enclosed in ***Appendix F***.

Table 3.2: TCLP and UCS Test Results of Mixed Soil

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	SAND TO CEMENT RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-003 (AS-020 in CAR) 1 sample was collected per 100m^3 of mixed soil after treatment	S1	0.1	1	<0.1	5	4.506	1
	S2	0.1	1	<0.1		3.285	
	S3	0.1	1	<0.1		4.574	
	S4	0.1	1	<0.1		3.760	
	S5	0.1	1	<0.1		4.243	
	S6	0.1	1	<0.1		3.511	
	S7	0.1	1	<0.1		4.265	
	S8	0.1	1	<0.1		4.327	
	S9	0.1	1	<0.1		4.462	
	S10	0.1	1	<0.1		4.220	
	S11	0.1	1	<0.1		4.162	
	S12	0.1	1	<0.1		2.925	
	S13	0.1	1	<0.1		4.591	
	S14	0.1	1	<0.1		3.604	
	S15	0.1	1	<0.1		2.482	
	S16	0.1	1	<0.1		4.192	
	S17	0.1	1	<0.1		4.251	
	S18	0.1	1	<0.1		4.654	

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	SAND TO CEMENT RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-003 (AS-020 in CAR) 1 sample was collected per 100m^3 of mixed soil after treatment	S19	0.1	1	<0.1	5	4.898	1
	S20	0.1	1	<0.1		3.778	
	S21	0.1	1	<0.1		4.284	
	S22	0.1	1	<0.1		4.952	
	S23	0.1	1	<0.1		4.780	
	S24	0.1	1	<0.1		5.161	
	S25	0.1	1	<0.1		3.211	
	S26	0.1	1	<0.1		4.905	
	S27	0.1	1	<0.1		5.156	
	S28	0.1	1	<0.1		4.432	
	S29	0.1	1	<0.1		4.518	
	S30	0.1	1	<0.1		4.676	
	S31	0.1	1	<0.1		3.492	
	S32-1*	0.1	1	<0.1		1.047	
	S33	0.1	1	<0.1		5.617	
	S34	0.1	1	<0.1		4.650	
	S35	0.1	1	<0.1		4.547	
	S36	0.1	1	<0.1		4.924	
	S37	0.1	1	<0.1		4.361	

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	SAND TO CEMENT RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-003 (AS-020 in CAR) 1 sample was collected per 100m^3 of mixed soil after treatment	S38	0.1	1	<0.1	5	4.581	1
	S39	0.1	1	<0.1		1.070	
	S40	0.1	1	<0.1		2.073	
	S41	0.1	1	<0.1		3.288	
	S42	0.1	1	<0.1		3.513	
	S43	0.1	1	<0.1		2.493	
	S44	0.1	1	<0.1		2.668	
	S45	0.1	1	<0.1		1.987	
	S46	0.1	1	<0.1		4.581	
	S47	0.1	1	<0.1		3.577	
	S48	0.1	1	<0.1		1.032	
	S49	0.1	1	<0.1		1.671	
	S50	0.1	1	<0.1		2.221	
	S51	0.1	1	<0.1		1.537	
	S52	0.1	1	<0.1		2.561	
	S53	0.1	1	<0.1		1.535	
	S54	0.1	1	<0.1		1.162	
	S55	0.1	1	<0.1		2.295	
	S56	0.1	1	<0.1		1.040	

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	SAND TO CEMENT RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-003 (AS-020 in CAR) 1 sample was collected per 100m^3 of mixed soil after treatment	S57	0.1	1	<0.1	5	3.137	1
	S58	0.1	1	<0.1		1.148	
	S59	0.1	1	<0.1		1.474	
	S60	0.1	1	<0.1		1.565	
	S61	0.1	1	<0.1		1.408	
	S62	0.1	1	<0.1		1.834	
	S63	0.1	1	<0.1		1.321	
	S64	0.1	1	<0.1		1.495	
	S65	0.1	1	<0.1		1.844	
	S66	0.1	1	<0.1		1.381	
	S67	0.1	1	<0.1		1.435	
	S68	0.1	1	<0.1		2.413	
	S69	0.1	1	<0.1		2.947	
	S70	0.1	1	<0.1		1.418	
	S71	0.1	1	<0.1		1.800	
	S72	0.075	1	<0.1		1.072	
	S73	0.075	1	<0.1		1.047	
	S74	0.075	1	<0.1		1.115	
	S75	0.1	1	<0.1		3.635	

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	SAND TO CEMENT RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-003 (AS-020 in CAR) 1 sample was collected per 100m^3 of mixed soil after treatment	S76	0.1	1	<0.1	5	1.135	1
	S77	0.1	1	<0.1		3.802	
	S78	0.1	1	<0.1		1.011	
	S79	0.1	1	<0.1		1.026	
	S80	0.1	1	<0.1		1.093	
	S81	0.1	1	<0.1		1.351	
	S82	0.1	1	<0.1		2.069	
	S83	0.1	1	<0.1		1.393	
	S84	0.1	1	<0.1		1.534	
	S85	0.1	1	<0.1		1.395	
	S86	0.1	1	<0.1		1.385	
	S87	0.1	1	<0.1		1.242	
	S88	0.1	1	<0.1		1.328	
	S89	0.1	1	<0.1		1.154	
	S90	0.1	1	<0.1		1.379	
	S91	0.1	1	<0.1		1.393	
	S92	0.1	1	<0.1		1.097	
	S93	0.1	1	<0.1		1.291	
	S94	0.1	1	<0.1		1.229	

CONTAMINATION ZONE	SAMPLE ID	CEMENT TO SOIL RATIO	SAND TO CEMENT RATIO	TCLP AS ARSENIC, mg/L	TCLP CRITERIA IN THE RAP, mg/L	UCS, MPa	UCS CRITERIA IN THE RAP, MPa
LD-003 (AS-020 in CAR) 1 sample was collected per 100m^3 of mixed soil after treatment	S95	0.1	1	<0.1	5	1.639	1
	S96	0.1	1	<0.1		1.241	

Remark (*) – The Sample ID is named “S32-1” instead of “S32”, which is due to the worker brought duplicate samples to the laboratory for testing UCS. However, these samples are taken from the same batch of mixed soil.

4 CONCLUSION

4.1.1 Contaminated soil from LD-003 (also named as A-S20 in the CAR) was excavated for cement solidification/stabilisation in accordance with the approved RAP.

4.1.2 According to the laboratory results, the Arsenic concentrations of all confirmatory samples were found to be below the RBRG criterion of 21.8 mg/kg dry soil. It is concluded that all contaminated soil has been excavated from LD-003 for further treatment and it is within the area of contaminated zone AS-020 identified in the SCAR. A total of 7,582m^3 of Arsenic-contaminated soil was excavated from LD-003.

4.1.3 The contaminated soils were treated by cement solidification/stabilisation. One set of performance samples was collected for every 100m^3 of the mixed contaminated soil and tested via TCLP for Arsenic concentration and via UCS to confirm the treatment achieving the remediation targets. Based on the laboratory results of which the last result was obtained on 15 January 2020, the treatment targets of the treated soils have been complied with the treatment standards of UCS and TCLP as recommended in the RAP.

4.1.4 All 9,098m^3 of treated soil will be permanently backfilled on-site and at the locations shown in ***Appendix E***.

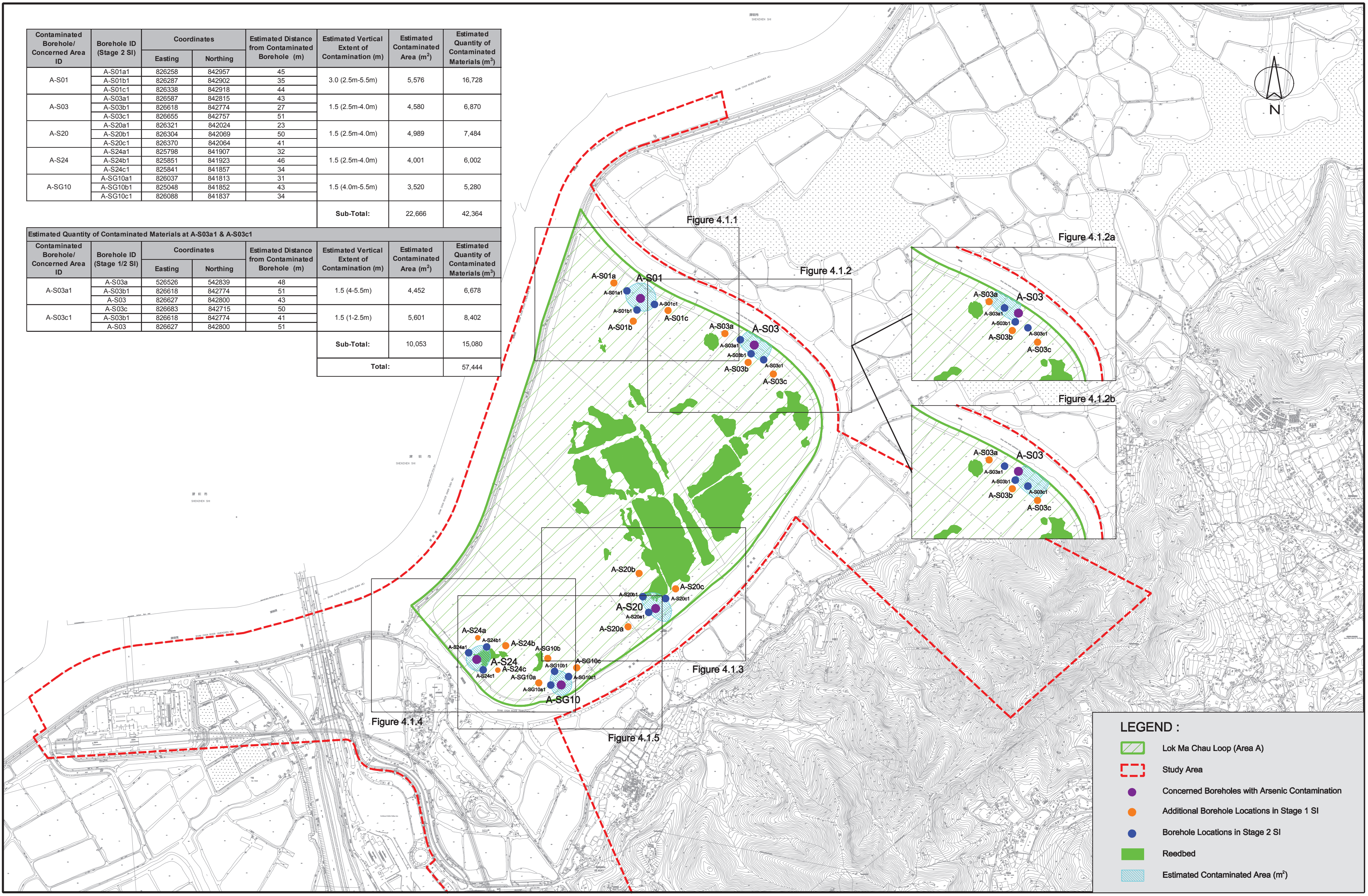
4.1.5 In conclusion, all the contaminated soil as located within LD-003 have been excavated and treated in accordance with the approved RAP. Since the land remediation works within LD-003 are completed, construction works at LD-003 may be able to be carried out subject to the approval by the EIAO Authority pursuant to EP Condition 2.16.

Appendix A EXTRACTED FIGURE 4.1 OF THE SUPPLEMENTARY CONTAMINATION ASSESSMENT REPORT FOR AREA A

Contaminated Borehole/ Concerned Area ID	Borehole ID (Stage 2 SI)	Coordinates		Estimated Distance from Contaminated Borehole (m)	Estimated Vertical Extent of Contamination (m)	Estimated Contaminated Area (m^2)	Estimated Quantity of Contaminated Materials (m^3)
		Easting	Northing				
A-S01	A-S01a1	826258	842957	45	3.0 (2.5m-5.5m)	5,576	16,728
	A-S01b1	826287	842902	35			
	A-S01c1	826338	842918	44			
A-S03	A-S03a1	826587	842815	43	1.5 (2.5m-4.0m)	4,580	6,870
	A-S03b1	826618	842774	27			
	A-S03c1	826655	842757	51			
A-S20	A-S20a1	826321	842024	23	1.5 (2.5m-4.0m)	4,989	7,484
	A-S20b1	826304	842069	50			
	A-S20c1	826370	842064	41			
A-S24	A-S24a1	825798	841907	32	1.5 (2.5m-4.0m)	4,001	6,002
	A-S24b1	825851	841923	46			
	A-S24c1	825841	841857	34			
A-SG10	A-SG10a1	826037	841813	31	1.5 (4.0m-5.5m)	3,520	5,280
	A-SG10b1	825048	841852	43			
	A-SG10c1	826088	841837	34			
					Sub-Total:	22,666	42,364

Estimated Quantity of Contaminated Materials at A-S03a1 & A-S03c1

Contaminated Borehole/ Concerned Area ID	Borehole ID (Stage 1/2 SI)	Coordinates		Estimated Distance from Contaminated Borehole (m)	Estimated Vertical Extent of Contamination (m)	Estimated Contaminated Area (m^2)	Estimated Quantity of Contaminated Materials (m^3)
		Easting	Northing				
A-S03a1	A-S03a	526526	542839	48	1.5 (4-5.5m)	4,452	6,678
	A-S03b1	826618	842774	51			
	A-S03	826627	842800	43			
A-S03c1	A-S03c	826683	842715	50	1.5 (1-2.5m)	5,601	8,402
	A-S03b1	826618	842774	41			
	A-S03	826627	842800	51			
					Sub-Total:	10,053	15,080
					Total:		57,444


N
Figure 4.1.1
Figure 4.1.2
Figure 4.1.2a
Figure 4.1.2b
Figure 4.1.3
Figure 4.1.4
Figure 4.1.5
A-S01a
A-S01
A-S01a1
A-S01b1
A-S01c1
A-S01b
A-S01c
A-S03a
A-S03
A-S03a1
A-S03b1
A-S03c1
A-S03b
A-S03c
A-S20b
A-S20c
A-S20b1
A-S20c1
A-S20
A-S20a1
A-S20a
A-S24a
A-S24a1
A-S24b1
A-S24b
A-SG10b
A-S24
A-S24c
A-S24c1
A-SG10b1
A-SG10c
A-SG10a
A-SG10c1
A-SG10a1
A-SG10
LEGEND :
Lok Ma Chau Loop (Area A)
Study Area
Concerned Boreholes with Arsenic Contamination
Additional Borehole Locations in Stage 1 SI
Borehole Locations in Stage 2 SI
Reedbed
Estimated Contaminated Area (m²)

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PLANNING
DEPARTMENT

ARUP
Ove Arup & Partners
Hong Kong Limited

Job Title
Agreement No. CE 53/2008 (CE) Planning and Engineering Study on Development of Lok Ma Chau Loop - Investigation

Drawing Title
Locations of Contaminated Zones

Rev	Description	Date
	FIRST ISSUE	07/11

Drawn AC
Date 07/11
Checked TC
Approved ST
Scale 1:10000 ON A3

Drawing No.
Figure 4.1

Rev.

Appendix B LABORATORY REPORTS OF SOIL CONFIRMATORY AND QA/QC SAMPLING WORKS

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945721-AA
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Oct-2019 to 28-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**LD-003-TCLP-Area 1 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-001**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**31.1**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**14**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	LD-003-TCLP-Area 1 Contaminated soil	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)										
HK1945721-001	LD-003-TCLP-Area 1 Contaminated soil	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945833-AA
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 2
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 24-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 24-Oct-2019 to 01-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945833

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 2 Contaminated soil**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945833-001**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**35.1**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***	***LOR***	***Unit***	***Original Result***	***Duplicate Result***	***RPD (%)***
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664175)								
HK1945636-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	7	7	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	***Spike Recovery (%)***		***Recovery Limits(%)***		***RPD (%)***	
Method: Compound	***CAS Number***	***LOR***	***Unit***	***Result***		***LCS***	***DCS***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2664175)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	97.2	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	***Spike Recovery (%)***		***Recovery Limits (%)***		***RPD (%)***	
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***		***MS***	***MSD***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2664175)										
HK1945636-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.2	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945833-AB**
Amendment : **2**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : **----**
Site : **----**

Date Samples Received : **24-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 24-Oct-2019 to 01-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945833

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 3 Contaminated soil**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945833-002**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**33.3**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	LD-003-TCLP-Area 3 Contaminated soil	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664175)								
HK1945636-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	7	7	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	97.2	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)										
HK1945636-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.2	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : ----
Telephone : **9686 4575**
Facsimile : ----

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting**
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Kwai Chung, N.T., Hong Kong
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Page : **1 of 4**
Work Order : **HK1945982-AA**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : ----
Site : ----

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 4 Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-001**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**26.7**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**10**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	LD-003-TCLP-Area 4 Contaminated soil	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945982-AB
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 5 Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-002**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**41.0**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***	***LOR***	***Unit***	***Original Result***	***Duplicate Result***	***RPD (%)***
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	LD-003-TCLP-Area 5 Contaminated soil	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	LD-003-TCLP-Area 5 Contaminated soil	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	***Spike Recovery (%)***		***Recovery Limits(%)***		***RPD (%)***	
Method: Compound	***CAS Number***	***LOR***	***Unit***	***Result***		***LCS***	***DCS***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	***Spike Recovery (%)***		***Recovery Limits (%)***		***RPD (%)***	
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***		***MS***	***MSD***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	SANG HING - KULY JOINT VENTURE	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	KENITH WONG	Contact	Richard Fung	**Work Order**	HK1943961-AB
Address	BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	Kenithwong@skjv.com.hk	E-mail	richard.fung@alsglobal.com		
Telephone	----	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	10-Oct-2019
Order number	WO008	Quote number	HKE/2533/2019 Rev1	Issue Date	21-Oct-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 10-Oct-2019 to 21-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943961

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	**LD-003-TCLP-Area 6 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943961-002**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**44.8**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2634839)								
HK1943860-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	2.9	2.8	4.63
HK1943961-002	LD-003-TCLP-Area 6 Contaminated soil	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	44.8	44.9	0.295
EG: Metals and Major Cations (QC Lot: 2634522)								
HK1943719-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	1	1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2634522)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	100.0	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2634522)										
HK1943719-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.8	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

ALS

CERTIFICATE OF ANALYSIS

Client : BLACK & VEATCH HONG KONG LTD
Contact : GO WAI KIT, VICTOR
Address : 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG
E-mail : ----
Telephone : 9686 4575
Facsimile : ----

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
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Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : HK1945833-AC
Amendment : 2

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : WO008
Quote number : HKE/2533/2019 Rev1
C-O-C number : ----
Site : ----

Date Samples Received : 24-Oct-2019
Issue Date : 29-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945833

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 7 Contaminated soil**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945833-003**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**35.2**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664175)								
HK1945636-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	7	7	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	97.2	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)										
HK1945636-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.2	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**

E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**

E-mail : **richard.fung@alsglobal.com**
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Page : **1 of 4**
Work Order : **HK1945833-AD**
Amendment : **2**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : **----**
Site : **----**

Date Samples Received : **24-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 24-Oct-2019 to 01-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945833

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 8 Contaminated soil**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945833-004**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**29.8**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**14**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664175)								
HK1945636-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	7	7	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	97.2	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)										
HK1945636-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.2	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945982-AC
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	**LD-003-TCLP-Area 9 Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-003**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**31.1**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**11**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : BLACK & VEATCH HONG KONG LTD
Contact : GO WAI KIT, VICTOR
Address : 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG
E-mail : ----
Telephone : 9686 4575
Facsimile : ----

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : HK1945982-AD
Amendment : 1

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : WO008
Quote number : HKE/2533/2019 Rev1
C-O-C number : ----
Site : ----

Date Samples Received : 25-Oct-2019
Issue Date : 29-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 10 Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-004**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**23.9**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**9**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945982-AF
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 11 (1) Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-006**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**31.1**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**12**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : ----
Telephone : **9686 4575**
Facsimile : ----

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting**
Centre, 1 - 3 Wing Yip Street,
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Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945982-AE**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : ----
Site : ----

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 11 Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-005**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**31.5**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**12**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

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CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : ----
Telephone : **9686 4575**
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Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
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Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945721-AB**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : ----
Site : ----

Date Samples Received : **23-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Oct-2019 to 28-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 12 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-002**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**32.7**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**17**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	LD-003-TCLP-Area 12 Contaminated soil	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)										
HK1945721-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

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CERTIFICATE OF ANALYSIS

Client : SANG HING - KULY JOINT VENTURE
Contact : KENITH WONG
Address : BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG
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Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : HK1943961-AD

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : WO008
Quote number : HKE/2533/2019 Rev1
C-O-C number : ----
Site : ----

Date Samples Received : 10-Oct-2019
Issue Date : 21-Oct-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 10-Oct-2019 to 21-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943961

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**LD-003-TCLP-Area 13 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943961-004**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**29.0**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**13**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2634839)								
HK1943860-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	2.9	2.8	4.63
HK1943961-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	44.8	44.9	0.295
EG: Metals and Major Cations (QC Lot: 2634522)								
HK1943719-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	1	1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2634522)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	100.0	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2634522)										
HK1943719-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.8	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945833-AE
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 2
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 24-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945833

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**LD-003-TCLP-Area 14 Contaminated soil**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945833-005**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**33.9**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664175)								
HK1945636-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	7	7	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	97.2	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)										
HK1945636-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.2	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945982-AG
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 15 Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-007**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**36.5**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
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CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**

E-mail : ----
Telephone : **9686 4575**
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Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting**
Centre, 1 - 3 Wing Yip Street,
Kwai Chung, N.T., Hong Kong

E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945982-AH**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : ----
Site : ----

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	**LD-003-TCLP-Area 16 Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-008**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**36.2**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd
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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945982-AI
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**				Client sample ID	**LD-003-TCLP-Area 17 Contaminated soil**	----	----	----	----
				Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*		**HK1945982-009**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties									
EA055: Moisture Content (dried @ 103°C)	----	0.1	%		**34.8**	----	----	----	----
EG: Metals and Major Cations									
EG020: Arsenic	7440-38-2	1	mg/kg		**12**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

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CERTIFICATE OF ANALYSIS

Client	:	SANG HING - KULY JOINT VENTURE	Laboratory	:	ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	:	KENITH WONG	Contact	:	Richard Fung	**Work Order**	: **HK1943961-AE**
Address	:	BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Kenithwong@skjv.com.hk	E-mail	:	richard.fung@alsglobal.com		
Telephone	:	----	Telephone	:	+852 2610 1044		
Facsimile	:	----	Facsimile	:	+852 2610 2021		
Project	:	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS				Date Samples Received	: 10-Oct-2019
Order number	:	WO008	Quote number	:	HKE/2533/2019 Rev1	Issue Date	: 21-Oct-2019
C-O-C number	:	----				No. of samples received	: 1
Site	:	----				No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943961

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	**LD-003-TCLP-Area 18 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943961-005**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**35.3**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**21**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2634839)								
HK1943860-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	2.9	2.8	4.63
HK1943961-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	44.8	44.9	0.295
EG: Metals and Major Cations (QC Lot: 2634522)								
HK1943719-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	1	1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2634522)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	100.0	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2634522)										
HK1943719-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.8	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1943961-AF
Address	: BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 10-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 21-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

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Specific Comments for Work Order: HK1943961

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	**LD-003-TCLP-Area 19 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943961-006**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**23.1**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**14**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2634839)								
HK1943860-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	2.9	2.8	4.63
HK1943961-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	44.8	44.9	0.295
EG: Metals and Major Cations (QC Lot: 2634522)								
HK1943719-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	1	1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2634522)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	100.0	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2634522)										
HK1943719-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.8	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

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ANALYICAL CHEMISTRY & TESTING SERVICES

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Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1945833-AF**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**	**Amendment**	: **2**
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **24-Oct-2019**
Order number	: **WO008**	Quote number	: **HKE/2533/2019 Rev1**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945833

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 20 Contaminated soil**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945833-006**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**36.0**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664175)								
HK1945636-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	7	7	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	97.2	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*		
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)										
HK1945636-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.2	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945833-AG
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 2
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 24-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 24-Oct-2019 to 01-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945833

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 21 Contaminated soil**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945833-007**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**31.5**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664175)								
HK1945636-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	7	7	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	97.2	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664175)										
HK1945636-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.2	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1943961-AG
Address	: BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 10-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 21-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 10-Oct-2019 to 21-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943961

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 22 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943961-007**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**29.1**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**18**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2634839)								
HK1943860-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	2.9	2.8	4.63
HK1943961-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	44.8	44.9	0.295
EG: Metals and Major Cations (QC Lot: 2634522)								
HK1943719-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	1	1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2634522)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	100.0	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2634522)										
HK1943719-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	93.8	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945721-AC
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Oct-2019 to 28-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 23 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-003**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**30.9**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2664078)										
HK1945721-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945721-AD**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : **----**
Site : **----**

Date Samples Received : **23-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

Client sample ID				**LD-003-TCLP-Area 24 Contaminated soil**	**----**	**----**	**----**	**----**
Client sampling date / time				08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-004**	**--------**	**--------**	**--------**	**--------**
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**32.5**	**----**	**----**	**----**	**----**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)										
HK1945721-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945721-AF
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 25 (1) Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-006**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**34.2**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**17**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*							
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*		
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*	
EG: Metals and Major Cations (QC Lot: 2664078)											
HK1945721-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----	

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1945721-AE
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	1
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	23-Oct-2019
Order number	WO008	Quote number	HKE/2533/2019 Rev1	Issue Date	29-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Oct-2019 to 28-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**LD-003-TCLP-Area 25 Contaminated soil**	**----**	**----**	**----**	**----**
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-005**	**--------**	**--------**	**--------**	**--------**
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**33.5**	**----**	**----**	**----**	**----**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)										
HK1945721-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

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ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	**BLACK & VEATCH HONG KONG LTD**	Laboratory	**ALS Technichem (HK) Pty Ltd**	Page	**1 of 4**
Contact	**GO WAI KIT, VICTOR**	Contact	**Richard Fung**	**Work Order**	**HK1945721-AG**
Address	**43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	**11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**	**Amendment**	**1**
E-mail	**----**	E-mail	**richard.fung@alsglobal.com**		
Telephone	**9686 4575**	Telephone	**+852 2610 1044**		
Facsimile	**----**	Facsimile	**+852 2610 2021**		
Project	**YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	**23-Oct-2019**
Order number	**WO008**	Quote number	**HKE/2533/2019 Rev1**	Issue Date	**29-Nov-2019**
C-O-C number	**----**			No. of samples received	**1**
Site	**----**			No. of samples analysed	**1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Oct-2019 to 28-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 26 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-007**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**28.3**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)										
HK1945721-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

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ANALYICAL CHEMISTRY & TESTING SERVICES

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CERTIFICATE OF ANALYSIS

Client	: **SANG HING - KULY JOINT VENTURE**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **KENITH WONG**	Contact	: **Richard Fung**	**Work Order**	: **HK1943961-AM**
Address	: **BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **Kenithwong@skjv.com.hk**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **----**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **10-Oct-2019**
Order number	: **WO008**	Quote number	: **HKE/2533/2019 Rev1**	Issue Date	: **21-Oct-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 10-Oct-2019 to 21-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943961

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**LD-003-TCLP-Area 27 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943961-013**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**39.7**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**21**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2634840)								
HK1943961-012	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	34.9	35.2	0.862
EG: Metals and Major Cations (QC Lot: 2634523)								
HK1943961-013	LD-003-TCLP-Area 27 Contaminated soil	**EG020: Arsenic**	7440-38-2	1	mg/kg	21	19	9.76

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2634523)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	98.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2634523)										
HK1943961-012	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	85.7	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945721-AH
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			Client sample ID	**LD-003-TCLP-Area 28 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-008**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**31.4**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**14**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)										
HK1945721-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1945721-AI**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**	**Amendment**	: **1**
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **23-Oct-2019**
Order number	: **WO008**	Quote number	: **HKE/2533/2019 Rev1**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Oct-2019 to 28-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945721

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-Area 29 Contaminated soil**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945721-009**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**25.2**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2664536)								
HK1945721-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	31.1	31.4	1.18
HK1945833-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	33.3	33.2	0.00
EG: Metals and Major Cations (QC Lot: 2664078)								
HK1945721-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	17	17	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	96.5	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2664078)										
HK1945721-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	90.1	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**

E-mail : ----
Telephone : **9686 4575**
Facsimile : ----

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
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Page : **1 of 4**
Work Order : **HK1945982-AJ**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : ----
Site : ----

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H1** **Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-010**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**31.1**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**12**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

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Laboratory : ALS Technichem (HK) Pty Ltd
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Page : 1 of 4
Work Order : HK1945982-AK
Amendment : 1

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : WO008
Quote number : HKE/2533/2019 Rev1
C-O-C number : ----
Site : ----

Date Samples Received : 25-Oct-2019
Issue Date : 29-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H2** **Contaminated soil**	**-----**	**-----**	**-----**	**-----**
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-011**	**---------**	**---------**	**---------**	**---------**
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**30.1**	**-----**	**-----**	**-----**	**-----**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**12**	**-----**	**-----**	**-----**	**-----**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667387)								
HK1944807-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	52.4	52.1	0.604
HK1945982-002	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	41.0	39.2	4.49
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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Page : **1 of 4**
Work Order : **HK1945982-AL**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : **----**
Site : **----**

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H3** **Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-012**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**28.0**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**11**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667388)								
HK1945982-012	LD-003-TCLP-H3 Contaminated soil	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	28.0	28.7	2.43
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

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Page : **1 of 4**
Work Order : **HK1945982-AM**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : ----
Site : ----

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H4** **Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-013**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**25.4**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**10**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667388)								
HK1945982-012	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	28.0	28.7	2.43
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

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Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
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Page : **1 of 4**
Work Order : HK1945982-AN
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : **----**
Site : **----**

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**	*Client sample ID*			**LD-003-TCLP-H5** **Contaminated soil**	----	----	----	----
	Client sampling date / time			24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-014**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**26.7**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**9**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667388)								
HK1945982-012	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	28.0	28.7	2.43
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : **SANG HING - KULY JOINT VENTURE**
Contact : **KENITH WONG**
Address : **BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **Kenithwong@skjv.com.hk**
Telephone : **----**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945126-AC**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : **----**
Site : **----**

Date Samples Received : **18-Oct-2019**
Issue Date : **23-Oct-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 18-Oct-2019 to 23-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**LD-003-TCLP-H6 (1) Contaminated soil**	**----**	**----**	**----**	**----**
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945126-003**	**--------**	**--------**	**--------**	**--------**
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**22.0**	**----**	**----**	**----**	**----**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**7**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1945126-AB
Address	: BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 23-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H6** **Contaminated soil**	**----**	**----**	**----**	**----**
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945126-002**	**--------**	**--------**	**--------**	**--------**
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**24.8**	**----**	**----**	**----**	**----**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**7**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945982-AR**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : **----**
Site : **----**

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H7** **Contaminated soil**	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-018**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**38.2**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**17**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667388)								
HK1945982-012	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	28.0	28.7	2.43
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

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CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1945126-AE
Address	: BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 23-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**LD-003-TCLP-H8** **Contaminated soil**	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945126-005**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**38.4**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**16**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: **SANG HING - KULY JOINT VENTURE**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **KENITH WONG**	Contact	: **Richard Fung**	**Work Order**	: **HK1945126-AF**
Address	: **BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **Kenithwong@skjv.com.hk**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **----**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **18-Oct-2019**
Order number	: **WO008**	Quote number	: **HKE/2533/2019 Rev1**	Issue Date	: **23-Oct-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 18-Oct-2019 to 23-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	LD-003-TCLP-H9 Contaminated soil	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	CAS Number	LOR	Unit	HK1945126-006	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**28.3**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945982-AS
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H10** **Contaminated soil**	**----**	**----**	**----**	**----**
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-019**	**--------**	**--------**	**--------**	**--------**
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**31.5**	**----**	**----**	**----**	**----**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**14**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667388)								
HK1945982-012	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	28.0	28.7	2.43
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : **SANG HING - KULY JOINT VENTURE**
Contact : **KENITH WONG**
Address : **BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **Kenithwong@skjv.com.hk**
Telephone : **----**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945126-AH**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : **----**
Site : **----**

Date Samples Received : **18-Oct-2019**
Issue Date : **23-Oct-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 18-Oct-2019 to 23-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**

			Client sample ID	**LD-003-TCLP-H11** **Contaminated soil**	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945126-008**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**19.9**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**6**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1945126-AI
Address	: BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 23-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H12** **Contaminated soil**	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945126-009**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**36.8**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**18**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	LD-003-TCLP-H12 Contaminated soil	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: **SANG HING - KULY JOINT VENTURE**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **KENITH WONG**	Contact	: **Richard Fung**	**Work Order**	: **HK1945126-AJ**
Address	: **BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **Kenithwong@skjv.com.hk**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **----**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **18-Oct-2019**
Order number	: **WO008**	Quote number	: **HKE/2533/2019 Rev1**	Issue Date	: **23-Oct-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 18-Oct-2019 to 23-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H13** **Contaminated soil**	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945126-010**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**38.9**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**12**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1945126-AK
Address	: BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 23-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 18-Oct-2019 to 23-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H14** **Contaminated soil**	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945126-011**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**39.5**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

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CERTIFICATE OF ANALYSIS

Client	: **SANG HING - KULY JOINT VENTURE**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **KENITH WONG**	Contact	: **Richard Fung**	**Work Order**	: **HK1945126-AA**
Address	: **BLACK & VEATCH HONG KONG LIMITED, 43/F AIA TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **Kenithwong@skjv.com.hk**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **----**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **18-Oct-2019**
Order number	: **WO008**	Quote number	: **HKE/2533/2019 Rev1**	Issue Date	: **23-Oct-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945126

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H15** **Contaminated soil**	-----	-----	-----	-----
			Client sampling date / time	16-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945126-001**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**36.2**	-----	-----	-----	-----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**21**	-----	-----	-----	-----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2653702)								
HK1945116-001	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	25.9	26.2	1.41
HK1945126-009	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	36.8	36.8	0.00
EG: Metals and Major Cations (QC Lot: 2653205)								
HK1945116-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	13	14	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2653205)										
HK1945116-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945982-AO
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 30-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H16** **Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-015**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**28.9**	----	----	----	----
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**11**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667388)								
HK1945982-012	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	28.0	28.7	2.43
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*		
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*	
EG: Metals and Major Cations (QC Lot: 2667072)											
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----	

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : ----
Telephone : **9686 4575**
Facsimile : ----

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting**
Centre, 1 - 3 Wing Yip Street,
Kwai Chung, N.T., Hong Kong
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945982-AP**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **WO008**
Quote number : **HKE/2533/2019 Rev1**
C-O-C number : ----
Site : ----

Date Samples Received : **25-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	**Manager - Inorganics**	**Inorganics**
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H17** **Contaminated soil**	**----**	**----**	**----**	**----**
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-016**	**---------**	**---------**	**---------**	**---------**
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**30.0**	**----**	**----**	**----**	**----**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**10**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667388)								
HK1945982-012	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	28.0	28.7	2.43
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*		
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945982-AQ
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 25-Oct-2019
Order number	: WO008	Quote number	: HKE/2533/2019 Rev1	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Chan Siu Ming , Vico	Manager - Inorganics	Inorganics
Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945982

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Soil sample(s) analysed on an as received basis. Result(s) reported on dry weight basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample(s) as received, digested by In-house method E-ASTM D3974-09 prior to determination of metals. The In-house method is developed based on ASTM D3974-09 method.

Analytical Results

Sub-Matrix: **SOIL**			*Client sample ID*	**LD-003-TCLP-H18** **Contaminated soil**	----	----	----	----
			Client sampling date / time	24-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945982-017**	--------	--------	--------	--------
EA/ED: Physical and Aggregate Properties								
EA055: Moisture Content (dried @ 103°C)	----	0.1	%	**33.8**	**----**	**----**	**----**	**----**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	1	mg/kg	**15**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **SOIL**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EA/ED: Physical and Aggregate Properties (QC Lot: 2667388)								
HK1945982-012	Anonymous	**EA055: Moisture Content (dried @ 103°C)**	----	0.1	%	28.0	28.7	2.43
EG: Metals and Major Cations (QC Lot: 2667072)								
HK1945982-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	mg/kg	16	16	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **SOIL**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)											
EG020: Arsenic	7440-38-2	1	mg/kg	<1	5 mg/kg	101	----	85.0	106	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **SOIL**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667072)										
HK1945982-001	Anonymous	**EG020: Arsenic**	7440-38-2	5 mg/kg	89.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : BLACK & VEATCH HONG KONG LTD
Contact : GO WAI KIT, VICTOR
Address : 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG
E-mail : ----
Telephone : 9686 4575
Facsimile : ----

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting
Centre, 1 - 3 Wing Yip Street,
Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : HK1943958
Amendment : 1

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : S3-SC068 (YL/2017/03)
Quote number : HKE/1516b/2019
C-O-C number : ----
Site :

Date Samples Received : 10-Oct-2019
Issue Date : 29-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 10-Oct-2019 to 14-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943958

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Water sample(s) analysed and reported on as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample digested by In-house method E-3005 prior to the determination of total metals. The In-house method is developed based on USEPA method 3005.

Analytical Results

Sub-Matrix: **WATER**			*Client sample ID*	**LD003-Water Sample for Equipment**	----	----	----	----
			Client sampling date / time	08-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943958-001**	--------	--------	--------	--------
EG: Metals and Major Cations - Total								
EG020: Arsenic	7440-38-2	10	µg/L	<10	----	----	----	----

Laboratory Duplicate (DUP) Report

- No Laboratory Duplicate (DUP) Results are required to be reported.

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations - Total (QC Lot: 2634572)											
EG020: Arsenic	7440-38-2	10	µg/L	<10	100 µg/L	103	----	85.0	110	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations - Total (QC Lot: 2634572)										
HK1943958-001	LD003-Water Sample for Equipment	**EG020: Arsenic**	7440-38-2	100 µg/L	103	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	:	BLACK & VEATCH HONG KONG LTD	Laboratory	:	ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	:	GO WAI KIT, VICTOR	Contact	:	Richard Fung	**Work Order**	: HK1945110
Address	:	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	:	----	E-mail	:	richard.fung@alsglobal.com		
Telephone	:	9686 4575	Telephone	:	+852 2610 1044		
Facsimile	:	----	Facsimile	:	+852 2610 2021		
Project	:	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS				Date Samples Received	: 18-Oct-2019
Order number	:	S3-SC068 (YL/2017/03)	Quote number	:	HKE/1516b/2019	Issue Date	: 29-Nov-2019
C-O-C number	:	----				No. of samples received	: 2
Site	:					No. of samples analysed	: 2

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 18-Oct-2019 to 23-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945110

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Water sample(s) analysed and reported on as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample digested by In-house method E-3005 prior to the determination of total metals. The In-house method is developed based on USEPA method 3005.

Analytical Results

Sub-Matrix: **WATER**			*Client sample ID*	**LD003-Water Sample for Equipment**	**LD003-Water Sample for Equipment**	----	----	----
			Client sampling date / time	16-Oct-2019	17-Oct-2019	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945110-001**	**HK1945110-002**	--------	--------	--------
EG: Metals and Major Cations - Total								
EG020: Arsenic	7440-38-2	10	µg/L	<10	<10	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations - Total (QC Lot: 2653231)								
HK1945110-002	LD003-Water Sample for Equipment	**EG020: Arsenic**	7440-38-2	10	µg/L	<10	<10	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations - Total (QC Lot: 2653231)											
EG020: Arsenic	7440-38-2	10	µg/L	<10	100 µg/L	96.2	----	85.0	110	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations - Total (QC Lot: 2653231)										
HK1945110-001	LD003-Water Sample for Equipment	**EG020: Arsenic**	7440-38-2	100 µg/L	96.6	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945823
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 24-Oct-2019
Order number	: S3-SC068 (YL/2017/03)	Quote number	: HKE/1516b/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 2
Site	:			No. of samples analysed	: 2

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 24-Oct-2019 to 29-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945823

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Water sample(s) analysed and reported on as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample digested by In-house method E-3005 prior to the determination of total metals. The In-house method is developed based on USEPA method 3005.

Analytical Results

Sub-Matrix: **WATER**			*Client sample ID*	**LD003-Water Sample for Equipment-1**	**LD003-Water Sample for Equipment-2**	**----**	**----**	**----**
			Client sampling date / time	23-Oct-2019	23-Oct-2019	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945823-001**	**HK1945823-002**	**--------**	**--------**	**--------**
EG: Metals and Major Cations - Total								
EG020: Arsenic	7440-38-2	10	µg/L	<10	<10	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations - Total (QC Lot: 2667074)								
HK1945823-002	LD003-Water Sample for Equipment-2	**EG020: Arsenic**	7440-38-2	1	µg/L	<10	<10	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations - Total (QC Lot: 2667074)											
EG020: Arsenic	7440-38-2	1	µg/L	<1	100 µg/L	97.2	----	85.0	110	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations - Total (QC Lot: 2667074)										
HK1945823-001	LD003-Water Sample for Equipment-1	**EG020: Arsenic**	7440-38-2	100 µg/L	95.4	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1945979**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**	**Amendment**	: **1**
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **25-Oct-2019**
Order number	: **S3-SC068 (YL/2017/03)**	Quote number	: **HKE/1516b/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	:			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 25-Oct-2019 to 29-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945979

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Water sample(s) analysed and reported on as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

Sample digested by In-house method E-3005 prior to the determination of total metals. The In-house method is developed based on USEPA method 3005.

Analytical Results

Sub-Matrix: **WATER**			*Client sample ID*	**LD003-Water Sample for Equipment-1**	----	----	----	----
			Client sampling date / time	25-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945979-001**	--------	--------	--------	--------
EG: Metals and Major Cations - Total								
EG020: Arsenic	7440-38-2	10	µg/L	<10	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations - Total (QC Lot: 2667074)								
HK1945823-002	Anonymous	**EG020: Arsenic**	7440-38-2	1	µg/L	<10	<10	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations - Total (QC Lot: 2667074)											
EG020: Arsenic	7440-38-2	1	µg/L	<1	100 µg/L	97.2	----	85.0	110	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations - Total (QC Lot: 2667074)										
HK1945823-001	Anonymous	**EG020: Arsenic**	7440-38-2	100 µg/L	95.4	----	75.0	125	----	----

Appendix C LABORATORY REPORTS OF PILOT TEST

Pilot Test on 8 May 2019

CONTRACT No. YL/2017/03
Development of Lok Ma Chau Loop:
Land Decontamination and Advance Engineering Works

生興 － 豐利聯營
Sang Hing – Kuly Joint Venture

Contractor's Submission Form

To : **The Supervisor's Representative**

Attn : **Mr. Victor Go (Senior Resident Engineer)**

From : **Contractor's Representative**

Signature :

Name :**Eric Fong (Site Agent)**

CSF No.: SKJV/W56/SO/1118

Date: 28th May 2019

Title of Submission:	**Proposed mixing ratio for contaminated soil Solidification Stabilisation treatment**
Location of Works:	**Land Decontamination Hot Spots**
Specification Reference:	**P.S 32.09**
Drawing Reference:	

Description of Contents:

We would like to propose mixing ratio for contaminated soil Solidification/Stabilisation treatment at below formula:
Contaminated soil : Cement : Sand = 1: 0.1: 0.1

Enclose herewith the Toxicity Characteristic Leaching Procedure(TCLP) and Unconfined Compressive Strength (UCS) test report for our trial mix contaminated soil samples for your review and approval.

Thank you for your kind attention.

Attachment: ☐ **No** ☒ **Yes**

Remarks :

Purpose of Submission: ☒ **For Comment (if any) and Approval** ☐ **For Reference and Record**

Prepared by : Marshall Chung

Checked by : Alex PO

Checked by:

Reviewed by :

C.C.

Unconfined Compressive Strength (UCS)

SUB-CONTRACTING REPORT

CONTACT	: MARSHALL CHUNG	WORK ORDER	: **HK1919790**
CLIENT	: SANG HING - KULY JOINT VENTURE		
ADDRESS	: P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG	SUB-BATCH DATE RECEIVED DATE OF ISSUE	: 1 : 10-MAY-2019 : 24-MAY-2019
PROJECT	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS	NO. OF SAMPLES CLIENT ORDER	: 1 :

General Comments

- Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.
- Sample(s) analysed and reported on an as received basis.
- UCS was subcontracted to and analysed by Soils & Materials Engineering Co., Ltd.
- UCS test on 15 May, 2019 (7th day).

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

WORK ORDER : HK1919790
SUB-BATCH : 1
CLIENT : SANG HING - KULY JOINT VENTURE
PROJECT : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1919790-001	20190508-S7 20kg Contaminated	SOLID	08-May-2019 15:30	19SR051106-4

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

HOKLAS 028
TEST

Test Report

On Determination Of The Unconfined Compressive Strength - Test Results

Tested in Accordance With: BS1377:Part 7:Section 7:1990

Report No.: 19SR051106-4
Page: 1 of 2
Date of Issue: 24/05/2019

Our job no.:	19SR051106-4	W.O.no.:	-
Contract no.:	-		
Project title:	-		
Project location:	-		
Client:	ALS Technichem (HK) Pty Ltd.		
Contractor:	-		
Project engineer:	-		
Project MEMO:	-		
Ground investigation ref:	-		

Details as supplied by client

Drillhole/Trial pit no.:	-	Sample type:	U76
Client sample no.:	HK1919790-001	Sample recovery(%):	-
Sample depth (m):	- TO -	Sample mass (kg):	-
Sample geological origin:	-	Type of test:	-
Sample visual description	20190508-S7 20kg Contaminated Soil:2kg cement:2kg sand		

Laboratory test results

Date sample received:	11/05/2019	Lab sample no.:	1
Specimen no.:	1	Specimen depth(m):	- TO -
Orientation of the specimen:	-	Specimen selected by:	- Specifier
Date test(s) commenced:	15/05/2019	Date test(s) completed:	15/05/2019
Sample description:	-		
Whether sample disturbance or loss of moisture:	-	Soil signs of the specimen:	
Particle size assessment before test:	The size of the largest particle does not exceed 1/5 of the diameter of the specimen		

Preparation of specimen: -
Nominal diameter: mm -

Specimen details

Mean diameter	mm	77.3	Area	mm²	4692.98
Mean length	mm	159.6	Volume	cm³	749.00
Wet mass	g	1354.3	Dry mass	g	1092.2
Moisture content	%	24	Bulk density	Mg/m³	1.81
Test Method		BS1377:Part 7:Section 7:1990	Dry density	Mg/m³	1.46

Compression results

Machine no.	SR1190	Rate of deformation	mm/min	0.5
Force device no.	SR1192	Force device factor	kN/div	0.001
Dial gauge no.	SR1195	Dial gauge factor	mm/div	0.01

Elasped time min:second	Deformation gauge reading	Compression of specimen ΔL mm	Specimen strain ε %	Force gauge reading	Axial force P kN	Corrected area A mm²	Axial stress σ_1 kPa
-	0	0.00	0.00	0	0.000	4692.98	0.00
-	10	0.10	0.06	519	0.519	4695.92	110.52
-	20	0.20	0.13	923	0.923	4698.87	196.43
-	30	0.30	0.19	1519	1.519	4701.82	323.07
-	43	0.43	0.27	2726	2.726	4705.66	579.30
-	54	0.54	0.34	4258	4.258	4708.91	904.24
-	60	0.60	0.38	5146	5.146	4710.69	1092.41
-	70	0.70	0.44	6804	6.804	4713.66	1443.47
-	80	0.80	0.50	7410	7.410	4716.62	1571.04
-	90	0.90	0.56	7104	7.104	4719.60	1505.21
-	100	1.00	0.63	6502	6.502	4722.57	1376.79
-	110	1.10	0.69	5916	5.916	4725.55	1251.92
-	120	1.20	0.75	5421	5.421	4728.53	1146.44
-	130	1.30	0.81	5042	5.042	4731.52	1065.62
-	140	1.40	0.88	4646	4.646	4734.51	981.30
-	150	1.50	0.94	4245	4.245	4737.51	896.04
-	160	1.60	1.00	3920	3.920	4740.51	826.92
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Sketch of failure condition
Inclination of shear surface

#See attached the photograph
θ = - deg
z = - mm

Maximum axial stress	1571.04	kPa
Axial strain at failure	0.50	%
Unconfined compressive strength q_u	**1571.04**	**kPa**

Remarks: -

The test ref. no.: UCS_1

Page: 1 of 2

Checked by: Lau Kam Yin

Approved signatory: Yeung Chi San / Kwok Chun Chuen

Form No SRRP 017-1/Issue 2/Rev C/01/11/2007
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綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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Tel: (852) 2873 6860
Fax: (852) 2555 7533

ilac-MRA
HOKLAS 028 TEST

Test Report

On Determination Of The Unconfined Compressive Strength - Stress/Strain Curve

Report No.: 19SR051106-4
Page: 2 of 2
Date of Issue: 24/05/2019

Tested in Accordance With: BS1377:Part 7:Section 7:1990

Our job no.:	19SR051106-4	W.O.no.:	-	
Contract no.:	-			
Project title:	-			
Project location:	-			
Customer:	ALS Technichem (HK) Pty Ltd.			
Contractor:	-			
Project engineer:	-			
Project MEMO:	-			
Ground investigation ref:	-			

Details as supplied by customer

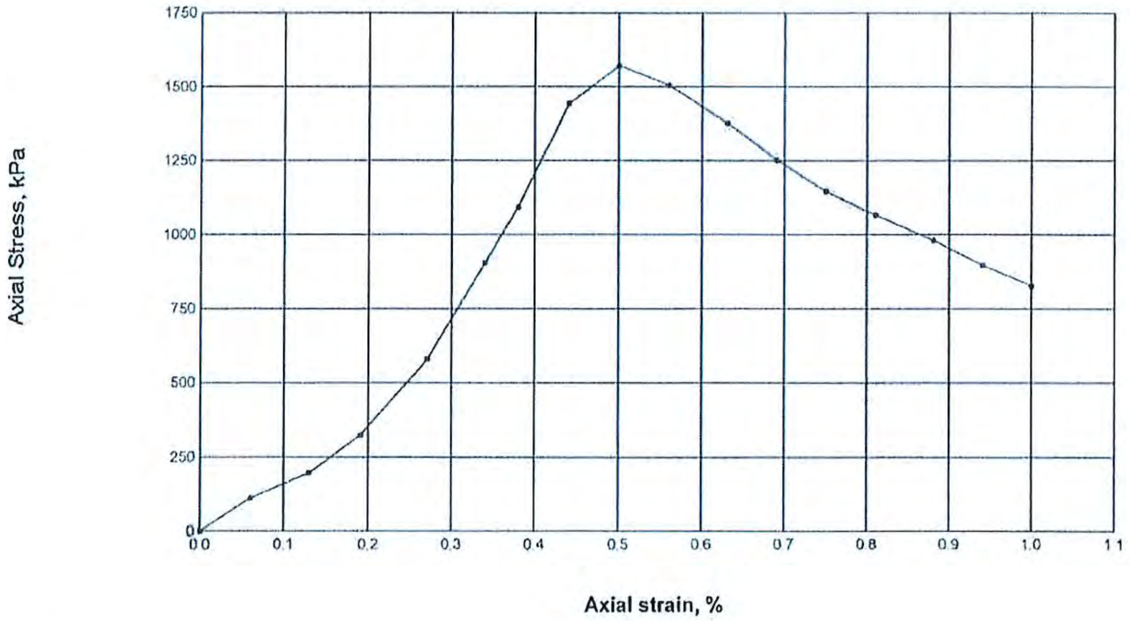
Drillhole/Trial pit no.:	-	Sample type:	U76	
Customer sample no.:	HK1919790-001	Sample recovery(%):	-	
Sample depth (m):	- TO -	Sample mass (kg):	-	
Sample geological origin:	-	Type of test:	-	
Sample visual description	20190508-S7 20kg Contaminated Soil:2kg cement:2kg sand			

Laboratory test results

Date sample received:	11/05/2019	Lab sample no.:	1	
Specimen no.:	1	Specimen depth(m):	-	TO -
Orientation of the specimen:	-	Specimen selected by:	-	Specifier
Date test(s) commenced:	15/05/2019	Date test(s) completed:	15/05/2019	
Sample description:	-			

Whether sample disturbance or loss of moisture: -
Soil signs of the specimen:
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen

Stress - strain curve



From curve

Maximum axial stress	kPa	1571.04	Axial strain at failure	%	0.50

Remarks: -

The test ref. no.: UCS_1 **Page: 2 of 2**

Form No SRRP 017-2/Issue 2/Rev C/01/11/2007
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Toxicity Characteristic Leaching Procedure (TCLP)

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

PRELIMINARY REPORT FOR REFERENCE ONLY

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **MARSHALL CHUNG**
Address : **43/F, AIA KOWLOIN TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : ----
Telephone : ----
Facsimile : ----

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1911442**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **YL201703-0302 (Revised)**
Quote number : **HKE/1143c/2019**
C-O-C number : ----
Site : ----

Date Samples Received : **15-Mar-2019**
Issue Date : **28-May-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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Hong Kong Accreditation Service (HKAS) has accredited this laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066) under Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific laboratory activities as listed in the HOKLAS Directory of Accredited Laboratories.

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 15-Mar-2019 to 25-Mar-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1911442

Sample(s) were received in ambient condition.

Sample(s) analysed and reported on an as received basis.

TCLP extraction started on 20 March, 2019.

TCLP Leacahte sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**T5 2.0kg cement:20kg contaminated soil:2kg sand**	—	—	—	—
			Client sampling date / time	13-Mar-2019	—	—	—	—
Compound	*CAS Number*	*LOR*	*Unit*	**HK1911442-001**	—	—	—	—
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	—	—	—	—
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	—	1	–	**1**	—	—	—	—

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2254763)								
HK1911438-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2254763)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.9	----	85	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2254763)										
HK1911438-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.2	----	75	125	----	----

Pilot Test on 16 August 2019

CONTRACT No. YL/2017/03 **Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works**	**生興 – 豐利聯營** **Sang Hing – Kuly Joint Venture**

Contractor's Submission Form

To : The Supervisor's Representative **Attn : Mr. Victor GO (Senior Resident Engineer)**	**From : Contractor's Representative** **Signature :** **Name : Eric FONG (Site Agent)**
CSF No.: SKJV/W56/SO/1560	**Date: 16th October 2019**

Title of Submission:	**Proposed Alternative Mixing Ratio for Cement Solidification / Stabilisation Treatment**
Location of Works:	**Land Decontamination Works**
Specification Reference:	**P.S 32.05 and 32.06**
Drawing Reference:	

Description of Contents:

Further to our previous letter ref. (SKJV/W56/SO/1560) dated 16th September 2019 regarding our proposal for revising mixing ratio of cement solidification/stabilization.

Please be informed that this revised mixing ratio has been endorsed by our Land Decontamination Consultant Specialist (LCS) as per attached signed copy of cover letter ref. SKJV/W56/S0/1560.

Therefore, if no further comment received from your side, Environmental Team (ET) and Independent Environmental Consultant by next week, we will proceed to change the cement ratio in cement solidification/stabilization works from 10% to 7.5 % (i.e. new mixing ratio: 7.5% cement & 10% sand by weight)

Thank you for your kind attention.

Attachment: ☐ **No** ■ **Yes**

Remarks:

Purpose of Submission: ■ **For Comment (if any) and Approval** ☐ **For Reference and Record**

Prepared by : Ronald WONG **Checked by : Alex PO** **Checked by:**	**Reviewed by :**

C.C.

CONTRACT No. YL/2017/03 **Development of Lok Ma Chau Loop:** **Land Decontamination and Advance Engineering Works**	**生興 － 豐利聯營** **Sang Hing – Kuly Joint Venture**

Contractor's Submission Form

To : The Supervisor's Representative **Attn : Mr. Victor GO (Senior Resident Engineer)**	**From : Contractor's Representative** **Signature :** **Name : Eric FONG (Site Agent)**
CSF No.: SKJV/W56/SO/1560	**Date: 16th September 2019**

Title of Submission:	**Proposed Alternative Mixing Ratio for Cement Solidification / Stabilisation Treatment**
Location of Works:	**Land Decontamination Works**
Specification Reference:	**P.S 32.05 and 32.06**
Drawing Reference:	

Description of Contents:

Further to our previous letter ref. (SKJV/W56/SO/1560) dated 28th May 2019 regarding our proposal for mixing ratio of cement solidification/stabilization. After over a month of learning period for mixing of contaminated soil, most of UCS results are found more larger than 1 MPa, therefore we would like to propose a lower cement content mixing ratio to optimize the cement usage and to minimize the quantity of treated soil generation.

We have conducted a trial on 16 Aug 2019 for mixing 20kg contaminated soil by using 7.5% of cement content and 10% of sand by weight under your supervision staff witness. The results are found satisfactory with method statement that larger than 1 MPa for UCS test and less than 1 mg for TCLP test. Enclosed please find the copy of test results for your reference.

Therefore, we are writing to seek your approval for changing the cement ratio in cement solidification/stabilization works from 10% to 7.5 % (i.e. new mixing ratio: 7.5% cement & 10% sand by weight)

Thank you for your kind attention.

Attachment: ☐ **No** ■ **Yes**

Remarks:

Purpose of Submission: ■ **For Comment (if any) and Approval** ☐ **For Reference and Record**

Prepared by : Kenneth WONG **Checked by : Alex PO** **Checked by:**	**Reviewed by :**

C.C.

Unconfined Compressive Strength (UCS)

Soil Services Testing Company Limited
Unit 04, 13/F, Luen Cheong Can Centre,
8 Yip Wong Road, Tuen Mun,
New Territories, Hong Kong.
Tel : +852 2463 0100
Fax : +852 2463 0609
E-mail : sst@soilservices.com.hk
HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190120
Job No.: SHK190013
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: Trial 1
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: 20 kg contaminated soil mixed with 7.5% cement and 10% sand
Date of Test: 16/8/2019
W.O. No.#: -
Date Received: 10/8/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1325.4
Length of specimen	mm	155.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4686.9	Moisture content	%	-
Volume of specimen	cm^3	727.55	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

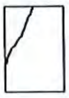
Visual Description: Grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

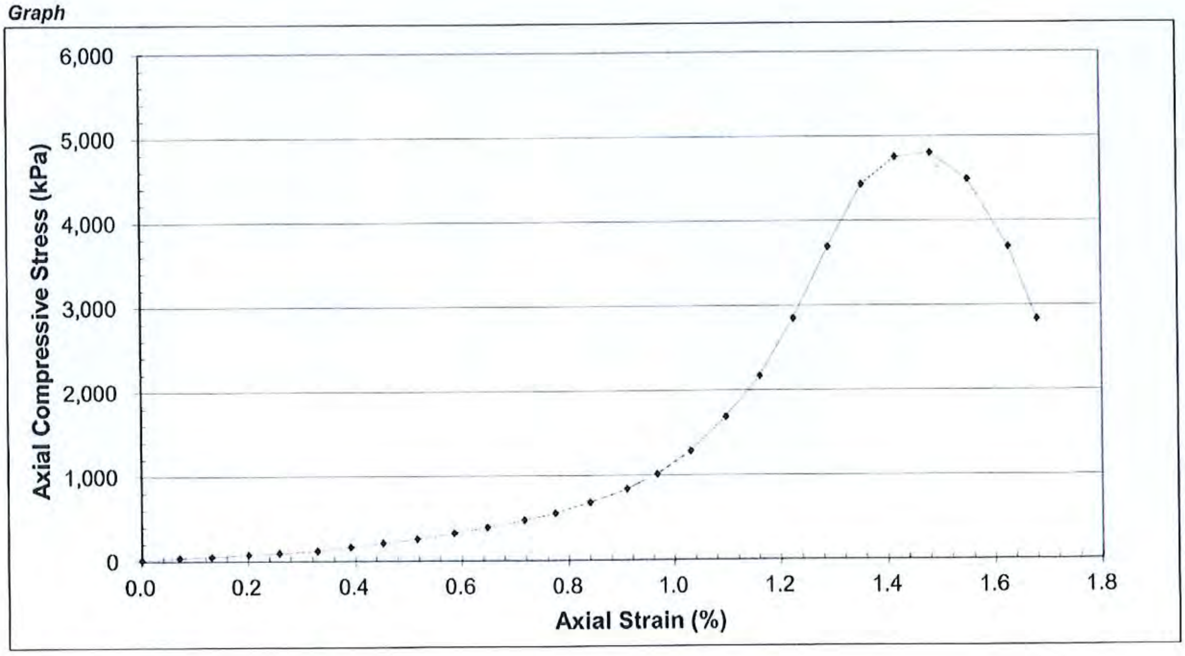
Compression Results

Maximum axial stress	4799	kPa
Axial strain at failure	1.5	%
Unconfined compressive strength, (q_u)	4799	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 9/8/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 16 August 2019

Date : 16 August 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190120
Job No.: SHK190013
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: Trial 1
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: 20 kg contaminated soil mixed with 7.5% cement and 10% sand

Date of Test: 16/8/2019
W.O. No.#: -
Date Received: 10/8/2019

Information provided by Client

Machine No.	TM08	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM08-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	155.2
		Original area (A_o)	mm^2	4686.9

The compression was terminated at 1.7% of axial strain and the peak axial compressive stress is reached at 1.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4686.9	10.67
0.11	0.1	-	0.18	180	4690.2	38.38
0.20	0.1	-	0.24	240	4693.0	51.14
0.31	0.2	-	0.35	350	4696.3	74.53
0.40	0.3	-	0.44	440	4699.0	93.64
0.51	0.3	-	0.56	560	4702.4	119.09
0.61	0.4	-	0.77	770	4705.3	163.65
0.70	0.5	-	0.99	990	4708.2	210.27
0.80	0.5	-	1.22	1220	4711.2	258.96
0.91	0.6	-	1.54	1540	4714.5	326.65
1.01	0.6	-	1.85	1850	4717.5	392.16
1.11	0.7	-	2.25	2250	4720.7	476.62
1.20	0.8	-	2.63	2630	4723.5	556.80
1.30	0.8	-	3.22	3220	4726.6	681.26
1.41	0.9	-	3.97	3970	4729.9	839.34
1.50	1.0	-	4.79	4790	4732.7	1012.11
1.60	1.0	-	6.08	6080	4735.7	1283.86
1.70	1.1	-	8.00	8000	4738.9	1688.15
1.80	1.2	-	10.29	10290	4742.0	2169.97
1.90	1.2	-	13.51	13510	4745.0	2847.19
2.00	1.3	-	17.54	17540	4748.2	3694.05
2.10	1.4	-	21.05	21050	4751.3	4430.41
2.20	1.4	-	22.59	22590	4754.3	4751.50
2.30	1.5	-	22.83	22830	4757.4	$\boxed{4798.81}$
2.41	1.6	-	21.38	21380	4760.8	4490.88
2.53	1.6	-	17.59	17590	4764.4	3691.96
2.61	1.7	-	13.51	13510	4767.0	2834.08

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Tel : +852 2463 0100
Fax : +852 2463 0609
E-mail : sst@soilservices.com.hk
HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190120
Job No.: SHK190013
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: Trial 2
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: 20 kg contaminated soil mixed with 7.5% cement and 10% sand
Date of Test: 16/8/2019
W.O. No.#: -
Date Received: 10/8/2019

Information provided by Client

Specimen Details

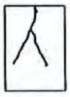
Diameter of specimen	mm	77.4	Wet mass of specimen	g	1341.0
Length of specimen	mm	156.5	Dry mass of specimen	g	-
Area of specimen	mm^2	4710.0	Moisture content	%	-
Volume of specimen	cm^3	737.26	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

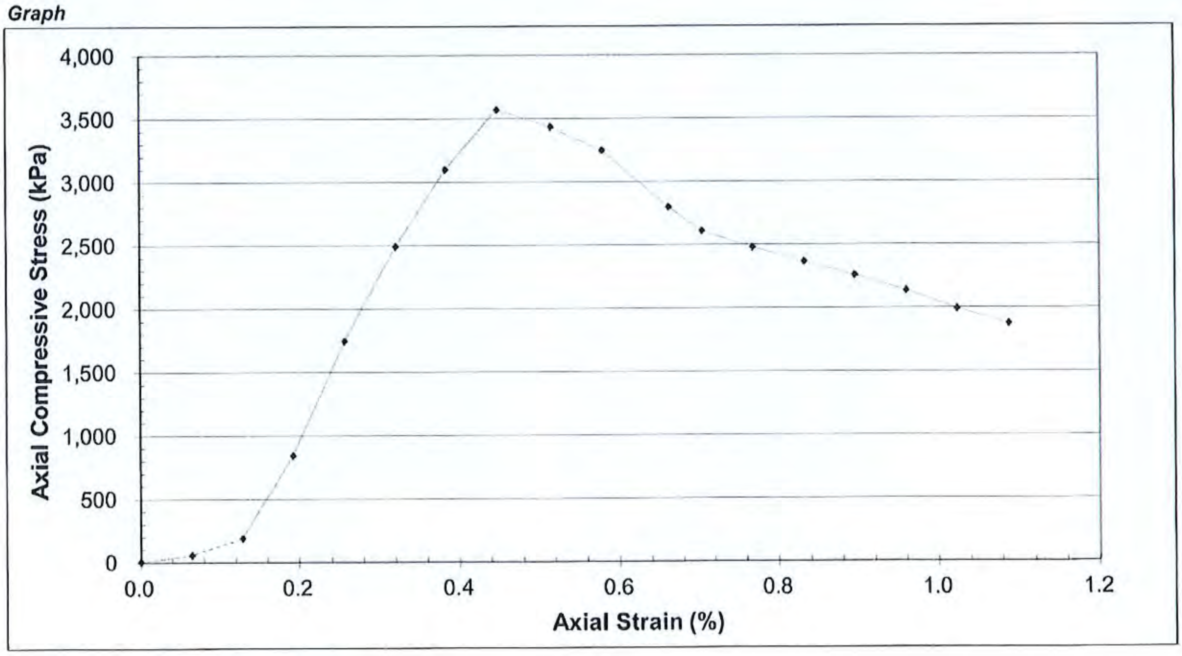
Visual Description: Grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3572	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.45	%		
Unconfined compressive strength, (q_u)	3572	kPa		

Graph



Remarks : Mixing Date : 9/8/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 16 August 2019

Date : 16 August 2019

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Tel : +852 2463 0100
Fax : +852 2463 0609
E-mail : sst@soilservices.com.hk

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190120
Job No.: SHK190013
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: Trial 2
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: 20 kg contaminated soil mixed with 7.5% cement and 10% sand
Date of Test: 16/8/2019
W.O. No.#: -
Date Received: 10/8/2019

Information provided by Client

Machine No.	TM08	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM08-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	156.5
		Original area (A_o)	mm^2	4710.0

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.01	10	4710.0	2.12
0.10	0.1	-	0.27	270	4713.0	57.29
0.20	0.1	-	0.89	890	4716.1	188.72
0.30	0.2	-	3.97	3970	4719.1	841.27
0.40	0.3	-	8.24	8240	4722.1	1744.99
0.50	0.3	-	11.77	11770	4725.2	2490.93
0.60	0.4	-	14.64	14640	4728.1	3096.37
0.70	0.4	-	16.90	16900	4731.2	3572.04
0.81	0.5	-	16.26	16260	4734.4	3434.43
0.91	0.6	-	15.39	15390	4737.4	3248.59
1.04	0.7	-	13.27	13270	4741.4	2798.76
1.10	0.7	-	12.37	12370	4743.4	2607.84
1.20	0.8	-	11.77	11770	4746.4	2479.75
1.30	0.8	-	11.24	11240	4749.5	2366.56
1.40	0.9	-	10.73	10730	4752.6	2257.73
1.50	1.0	-	10.16	10160	4755.6	2136.42
1.60	1.0	-	9.48	9480	4758.7	1992.14
1.70	1.1	-	8.93	8930	4761.8	1875.35

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Toxicity Characteristic Leaching Procedure
(TCLP)

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: **HK1934341**
Address	: P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: —	Telephone	: +852 2610 1044		
Facsimile	: —	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 10-Aug-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 20-Aug-2019
C-O-C number	: —			No. of samples received	: 1
Site	: —			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**Managing Director**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 10-Aug-2019 to 20-Aug-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1934341

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: TCLP LEACHATE

			Client sample ID	20190809-TCLP-Trial 1 20kg contaminated soil mixed with 7.5% cement and 10% sand	—	—	—	—
			Client sampling date / time	09-Aug-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	HK1934341-001	——	——	——	——
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	—	—	—	—
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	1	—	—	—	—

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2531399)								
HK1934157-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*	*Concentration*	*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2531399)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.3	----	85	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2531399)										
HK1934157-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	114	----	75	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client : SANG HING - KULY JOINT VENTURE
Contact : KENITH WONG
Address : P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG
E-mail : Kenithwong@skjv.com.hk
Telephone : ---
Facsimile : ---

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : **HK1934345**

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : S3-SC073 (YL/2017/03)
Quote number : HKE/2151/2019
C-O-C number : ---
Site : ---

Date Samples Received : 10-Aug-2019
Issue Date : 20-Aug-2019
No. of samples received : 1
No. of samples analysed : 1

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Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	Managing Director	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1934345

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: TCLP LEACHATE

			Client sample ID	**20190809-TCLP-Trial 2 20kg contaminated soil mixed with 7.5% cement and 10% sand**	—	—	—	—
			Client sampling date / time	09-Aug-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1934345-001**	——	——	——	——
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	—	—	—	—
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	1	—	—	—	—

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2531399)								
HK1934157-001	Anonymous	EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*	*Concentration*	*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2531399)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.3	----	85	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Concentration*	*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2531399)										
HK1934157-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	114	----	75	125	----	----

Appendix D LABORATORY REPORTS OF TREATED SOIL

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1944624-AA
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 15-Oct-2019 to 24-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S1 Contaminated soil mixed with 10% cement and 10% sand**	**----**	**----**	**----**	**----**
			Client sampling date / time	02-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: **SANG HING - KULY JOINT VENTURE**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **KENITH WONG**	Contact	: **Richard Fung**	**Work Order**	: **HK1943388-AA**
Address	: **P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **Kenithwong@skjv.com.hk**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **----**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **08-Oct-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **17-Oct-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**Managing Director**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943388

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S2 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	02-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943388-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2645829)								
HK1943388-001	LD003-TCLP-S2 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)										
HK1943388-001	LD003-TCLP-S2 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	1 mg/L	105	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: **SANG HING - KULY JOINT VENTURE**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **KENITH WONG**	Contact	: **Richard Fung**	**Work Order**	: **HK1943388-AB**
Address	: **P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **Kenithwong@skjv.com.hk**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **----**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **08-Oct-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **17-Oct-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**Managing Director**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943388

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S3 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	02-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943388-002**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2645829)								
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)										
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	105	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1944624-AB**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **15-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 15-Oct-2019 to 24-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S4 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	03-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-002**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

ALS

CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1943388-AD
Address	: P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 17-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**Managing Director**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943388

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S5 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	03-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943388-004**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2645829)								
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)										
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	105	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1943388-AE
Address	: P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 17-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	Managing Director	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943388

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			Client sample ID	**LD003-TCLP-S6 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	03-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943388-005**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2645829)								
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)										
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	105	----	75.0	125	----	----

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: SANG HING - KULY JOINT VENTURE	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: KENITH WONG	Contact	: Richard Fung	**Work Order**	: HK1943388-AF
Address	: P.O. BOX NO. 1051, YUEN LONG DELIVERY OFFICE, YUEN LONG, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Kenithwong@skjv.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 08-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 17-Oct-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**Managing Director**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943388

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S7 Contaminated soil mixed with 10% cement and 10% sand**	**----**	**----**	**----**	**----**
			Client sampling date / time	03-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943388-006**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2645829)								
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)										
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	105	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

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ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1943733
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 09-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 09-Oct-2019 to 17-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1943733

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S8 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	04-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1943733-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2645829)								
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2645829)										
HK1943388-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	105	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1944624-AC
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S9 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	04-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-003**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1944624-AD**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**	**Amendment**	: **1**
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **15-Oct-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S10 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	09-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-004**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**

E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**

E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1944624-AE**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **15-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S11 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	09-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-005**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1944624-AF**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**	**Amendment**	: **1**
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **15-Oct-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Specific Comments for Work Order: HK1944624

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Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S12 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	09-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-006**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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ALS

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1944624-AG
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

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Specific Comments for Work Order: HK1944624

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Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S13 Contaminated soil mixed with 10% cement and 10% sand**	**----**	**----**	**----**	**----**
			Client sampling date / time	10-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-007**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1944624-AH
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	1
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	15-Oct-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	29-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S14 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	10-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-008**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1944624-AI**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**	**Amendment**	: **1**
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **15-Oct-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 15-Oct-2019 to 24-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S15 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	11-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-009**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1944624-AJ
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	1
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	15-Oct-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	29-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 15-Oct-2019 to 24-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S16 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	11-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-010**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1944624-AK
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 15-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

Client sample ID				**LD003-TCLP-S17 Contaminated soil mixed with 10% cement and 10% sand**	**----**	**----**	**----**	**----**
Client sampling date / time				11-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-011**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1944624-AL**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **15-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1944624

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S18 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	12-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1944624-012**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2662001)								
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	97.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2662001)										
HK1943752-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945052
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 17-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 17-Oct-2019 to 28-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945052

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98. E

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S19 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	14-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945052-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667373)								
HK1945052-001	LD003-TCLP-S19 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)										
HK1945052-001	LD003-TCLP-S19 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945114-AA
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945114

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S20 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	14-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945114-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667373)								
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)										
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945114-AB
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945114

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S21 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	15-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945114-002**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667373)								
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)										
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945114-AC
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945114

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S22 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	15-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945114-003**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667373)								
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)										
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945114-AD
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945114

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S23 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	15-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945114-004**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667373)								
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)										
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting**
Centre, 1 - 3 Wing Yip Street,
Kwai Chung, N.T., Hong Kong
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945114-AE**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **18-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945114

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

Client sample ID				**LD003-TCLP-S24 Contaminated soil mixed with 10% cement and 10% sand**	**----**	**----**	**----**	**----**
Client sampling date / time				16-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945114-005**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667373)								
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)										
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**

E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**

E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945114-AF**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **18-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 18-Oct-2019 to 29-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945114

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S25 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	16-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945114-006**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667373)								
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)										
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945114-AG
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 18-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945114

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

Client sample ID				**LD003-TCLP-S26 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
Client sampling date / time				16-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945114-007**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667373)								
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667373)										
HK1945052-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945468-AA
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945468

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S27 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945468-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667385)								
HK1945468-001	LD003-TCLP-S27 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)										
HK1945468-001	LD003-TCLP-S27 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	1 mg/L	98.7	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1945468-AB
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	1
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	22-Oct-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	29-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945468

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S28 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	17-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945468-002**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667385)								
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)										
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	98.7	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945468-AC
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945468

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S29 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	18-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945468-003**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***	***LOR***	***Unit***	***Original Result***	***Duplicate Result***	***RPD (%)***
EG: Metals and Major Cations (QC Lot: 2667385)								
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			***Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report***						
					Spike Concentration	***Spike Recovery (%)***		***Recovery Limits(%)***		***RPD (%)***	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	***Spike Recovery (%)***		***Recovery Limits (%)***		***RPD (%)***	
Laboratory sample ID	*Client sample ID*	***Method: Compound***	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)										
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	98.7	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945468-AD
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 22-Oct-2019 to 29-Oct-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945468

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S30 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	18-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945468-004**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2667385)								
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2667385)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2667385)										
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	98.7	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : BLACK & VEATCH HONG KONG LTD
Contact : GO WAI KIT, VICTOR
Address : 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG
E-mail : ----
Telephone : 9686 4575
Facsimile : ----

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : HK1945468-AE
Amendment : 1

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : S3-SC073 (YL/2017/03)
Quote number : HKE/2151/2019
C-O-C number : ----
Site : ----

Date Samples Received : 22-Oct-2019
Issue Date : 29-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945468

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S31 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	19-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945468-005**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667385)								
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)										
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	98.7	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1945468-AF**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **22-Oct-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945468

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S32 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	19-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945468-006**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2667385)								
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.6	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2667385)										
HK1945468-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	98.7	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : BLACK & VEATCH HONG KONG LTD
Contact : GO WAI KIT, VICTOR
Address : 43/F, AIA KOWLOON TOWER, 100 HOW MING
STREET, KWUN TONG, KOWLOON, HONG KONG
E-mail : ----
Telephone : 9686 4575
Facsimile : ----

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting
Centre, 1 - 3 Wing Yip Street,
Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : HK1945728-AA
Amendment : 1

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : S3-SC073 (YL/2017/03)
Quote number : HKE/2151/2019
C-O-C number : ----
Site : ----

Date Samples Received : 23-Oct-2019
Issue Date : 29-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945728

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S33 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	21-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945728-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2675585)								
HK1945728-001	LD003-TCLP-S33 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2675585)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2675585)										
HK1945728-001	LD003-TCLP-S33 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	1 mg/L	98.4	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945728-AB
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945728

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S34 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	21-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945728-002**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2675585)								
HK1945728-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2675585)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2675585)										
HK1945728-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	98.4	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1945728-AC
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Oct-2019 to 01-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945728

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

			Client sample ID	**LD003-TCLP-S35 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
Sub-Matrix: **TCLP LEACHATE**			*Client sampling date / time*	21-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945728-003**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2675585)								
HK1945728-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2675585)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2675585)										
HK1945728-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	98.4	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1945728-AD
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	1
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	23-Oct-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	29-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1945728

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S36 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	21-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1945728-004**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2675585)								
HK1945728-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2675585)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.0	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2675585)										
HK1945728-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	98.4	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : ----
Telephone : **9686 4575**
Facsimile : ----

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1946654**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : ----
Site : ----

Date Samples Received : **30-Oct-2019**
Issue Date : **27-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 30-Oct-2019 to 08-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946654

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S37 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	22-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946654-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	LD003-TCLP-S37 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	LD003-TCLP-S37 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1946655
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 30-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946655

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S38 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	22-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946655-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client : BLACK & VEATCH HONG KONG LTD
Contact : GO WAI KIT, VICTOR
Address : 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG
E-mail : ----
Telephone : 9686 4575
Facsimile : ----

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : HK1946656
Amendment : 1

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : S3-SC073 (YL/2017/03)
Quote number : HKE/2151/2019
C-O-C number : ----
Site : ----

Date Samples Received : 30-Oct-2019
Issue Date : 27-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946656

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S39 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946656-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1946657
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 30-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Mike Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 30-Oct-2019 to 08-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946657

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S40 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	23-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946657-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1946658
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	1
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	30-Oct-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	27-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946658

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S41 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	25-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946658-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	:	BLACK & VEATCH HONG KONG LTD	Laboratory	:	ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	:	GO WAI KIT, VICTOR	Contact	:	Richard Fung	**Work Order**	: HK1946659
Address	:	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	:	----	E-mail	:	richard.fung@alsglobal.com		
Telephone	:	9686 4575	Telephone	:	+852 2610 1044		
Facsimile	:	----	Facsimile	:	+852 2610 2021		
Project	:	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS				Date Samples Received	: 30-Oct-2019
Order number	:	S3-SC073 (YL/2017/03)	Quote number	:	HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	:	----				No. of samples received	: 1
Site	:	----				No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946659

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			Client sample ID	**LD003-TCLP-S42 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	25-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946659-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1946660
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 30-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946660

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S43 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	26-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946660-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1946661
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 30-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946661

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S44 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	26-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946661-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1946749
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 31-Oct-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 31-Oct-2019 to 08-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1946749

Sample(s) were picked up from client by ALS Technichem (HK) staff in chilled condition.

Sample(s) analysed and reported on an as received basis.

Sample information (Project name, Sample ID, Sampling date/ time) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S45 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	28-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1946749-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2686271)								
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	101	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2686271)										
HK1946654-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1947267
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 05-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 05-Nov-2019 to 15-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1947267

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S46 Contaminated soil mixed with 10% cement and 10% sand**	**----**	**----**	**----**	**----**
			Client sampling date / time	28-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1947267-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2705185)								
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report							
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*		
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)										
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	93.6	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1947472
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	1
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	06-Nov-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	27-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 06-Nov-2019 to 15-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1947472

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S47 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	29-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1947472-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2705185)								
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)										
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	93.6	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1947741
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 07-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	Manager - Metals	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1947741

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S48 Contaminated soil mixed with 10% cement and 10% sand**	**----**	**----**	**----**	**----**
			Client sampling date / time	30-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1947741-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2705185)								
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)										
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	93.6	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

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CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1947990**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**	**Amendment**	: **1**
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **08-Nov-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 08-Nov-2019 to 15-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1947990

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S49 Contaminated soil mixed with 10% cement and 10% sand**	**----**	**----**	**----**	**----**
			Client sampling date / time	30-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1947990-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2705185)								
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)										
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	93.6	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : BLACK & VEATCH HONG KONG LTD
Contact : GO WAI KIT, VICTOR
Address : 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG
E-mail : ----
Telephone : 9686 4575
Facsimile : ----

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : HK1948054
Amendment : 1

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : S3-SC073 (YL/2017/03)
Quote number : HKE/2151/2019
C-O-C number : ----
Site : ----

Date Samples Received : 09-Nov-2019
Issue Date : 27-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948054

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S50 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	31-Oct-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1948054-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2705185)								
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)										
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	93.6	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1948056
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 09-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 09-Nov-2019 to 15-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948056

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S51 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	01-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1948056-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***	***LOR***	***Unit***	***Original Result***	***Duplicate Result***	***RPD (%)***
EG: Metals and Major Cations (QC Lot: 2705185)								
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	***Spike Recovery (%)***		***Recovery Limits(%)***		***RPD (%)***	
Method: Compound	***CAS Number***	***LOR***	***Unit***	***Result***		***LCS***	***DCS***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2705185)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	***Spike Recovery (%)***		***Recovery Limits (%)***		***RPD (%)***	
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***		***MS***	***MSD***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2705185)										
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	93.6	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1948057
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong	**Amendment**	: 1
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 09-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 27-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948057

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S52 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	01-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1948057-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2705185)								
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)										
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	93.6	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting**
Centre, 1 - 3 Wing Yip Street,
Kwai Chung, N.T., Hong Kong
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1948059**
Amendment : **1**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Date Samples Received : **09-Nov-2019**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
Issue Date : **27-Nov-2019**
C-O-C number : **----**
No. of samples received : **1**
Site : **----**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948059

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

This is an amendment of the Certificate of Analysis.

The client information has been amended.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S53 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	02-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1948059-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2705185)								
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	98.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2705185)										
HK1947266-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	93.6	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1948306
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: ----	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 12-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 21-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948306

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S54 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	04-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1948306-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
				Laboratory Duplicate (DUP) Report				
EG: Metals and Major Cations (QC Lot: 2714280)								
HK1948245-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2714280)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2714280)										
HK1948245-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	96.1	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : BLACK & VEATCH HONG KONG LTD
Contact : GO WAI KIT, VICTOR
Address : 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG
E-mail : ----
Telephone : 9686 4575
Facsimile : ----

Laboratory : ALS Technichem (HK) Pty Ltd
Contact : Richard Fung
Address : 11/F., Chung Shun Knitting
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Kwai Chung, N.T., Hong Kong
E-mail : richard.fung@alsglobal.com
Telephone : +852 2610 1044
Facsimile : +852 2610 2021

Page : 1 of 4
Work Order : **HK1948602**

Project : YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS
Order number : S3-SC073 (YL/2017/03)
Quote number : HKE/2151/2019
C-O-C number : ----
Site : ----

Date Samples Received : 14-Nov-2019
Issue Date : 22-Nov-2019
No. of samples received : 1
No. of samples analysed : 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948602

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S55 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	08-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1948602-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2714280)								
HK1948245-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2714280)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2714280)										
HK1948245-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	96.1	----	75.0	125	----	----

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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1948605
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 14-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 22-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 14-Nov-2019 to 20-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948605

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S56 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	08-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1948605-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

- **No Laboratory Duplicate (DUP) Results are required to be reported.**

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2714281)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	93.4	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2714281)										
HK1948605-001	LD003-TCLP-S56 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	1 mg/L	95.8	----	75.0	125	----	----

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ANALYTICAL CHEMISTRY & TESTING SERVICES

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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: **HK1948867**
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 16-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 26-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	Senior Chemist	Metals_ENV

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 16-Nov-2019 to 26-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1948867

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

Client sample ID				**LD003-TCLP-S57 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
Client sampling date / time				09-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1948867-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2723427)								
HK1948867-001	LD003-TCLP-S57 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2723427)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	103	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2723427)										
HK1948867-001	LD003-TCLP-S57 Contaminated soil mixed with 10% cement and 10% sand	**EG020: Arsenic**	7440-38-2	1 mg/L	101	----	75.0	125	----	----

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ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: **HK1949281**
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 19-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 28-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 19-Nov-2019 to 26-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949281

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S58 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	09-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949281-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2723429)								
HK1949012-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2723429)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2723429)										
HK1949012-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	103	----	75.0	125	----	----

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ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1949282
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 20-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 20-Nov-2019 to 26-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949282

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S59 Contaminated soil mixed with 10% cement and 10% sand**	----	----	----	----
			Client sampling date / time	11-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949282-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2723429)								
HK1949012-002	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2723429)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2723429)										
HK1949012-002	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	103	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1949484**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **21-Nov-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949484

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S60**	----	----	----	----
			Client sampling date / time	12-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949484-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2729193)								
HK1949484-001	LD003-TCLP-S60	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2729193)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	100	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2729193)										
HK1949484-001	LD003-TCLP-S60	**EG020: Arsenic**	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1949493
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 21-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 21-Nov-2019 to 29-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949493

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S61**	**----**	**----**	**----**	**----**
			Client sampling date / time	12-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949493-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729193)								
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	100	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)										
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: **HK1949494**
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 21-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949494

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S62**	----	----	----	----
			Client sampling date / time	13-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949494-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729193)								
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	100	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)										
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1949497
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	21-Nov-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	29-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 21-Nov-2019 to 29-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949497

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S63**	**----**	**----**	**----**	**----**
			Client sampling date / time	13-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949497-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2729193)								
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2729193)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	100	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2729193)										
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1949501**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **21-Nov-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949501

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S64**	----	----	----	----
			Client sampling date / time	18-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949501-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729193)								
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	100	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)										
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1949504**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **21-Nov-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949504

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S65**	----	----	----	----
			Client sampling date / time	18-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949504-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729193)								
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	100	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)										
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1949707
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 22-Nov-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 29-Nov-2019
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 22-Nov-2019 to 29-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949707

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S66**	**----**	**----**	**----**	**----**
			Client sampling date / time	19-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949707-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729195)								
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729195)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729195)										
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	99.2	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1949506**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **21-Nov-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 21-Nov-2019 to 29-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949506

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S67**	----	----	----	----
			Client sampling date / time	19-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949506-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729193)								
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	100	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729193)										
HK1949484-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	96.4	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**

E-mail : ----
Telephone : **9686 4575**
Facsimile : ----

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**

E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1949768**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : ----
Site : ----

Date Samples Received : **23-Nov-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Nov-2019 to 29-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949768

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S68**	----	----	----	----
			Client sampling date / time	20-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949768-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report* *LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729195)								
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729195)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729195)										
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	99.2	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1949779**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **23-Nov-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **29-Nov-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949779

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S69**	----	----	----	----
			Client sampling date / time	20-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949779-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2729195)								
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2729195)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2729195)										
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	99.2	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**

E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**

E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1949782**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **23-Nov-2019**
Issue Date : **29-Nov-2019**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949782

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S70**	----	----	----	----
			Client sampling date / time	21-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949782-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729195)								
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729195)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729195)										
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	99.2	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1949784
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	23-Nov-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	29-Nov-2019
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Nov-2019 to 29-Nov-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1949784

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S71**	----	----	----	----
			Client sampling date / time	21-Nov-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1949784-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2729195)								
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729195)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	99.9	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2729195)										
HK1949679-018	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	99.2	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1952104**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **09-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **18-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 09-Dec-2019 to 18-Dec-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1952104

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

TCLP extraction started date: xxxxxxxxx.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S72**	**----**	**----**	**----**	**----**
			Client sampling date / time	07-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1952104-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***	***LOR***	***Unit***	***Original Result***	***Duplicate Result***	***RPD (%)***
EG: Metals and Major Cations (QC Lot: 2771664)								
HK1952043-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	***CAS Number***	***LOR***	***Unit***	***Result***		***LCS***	***DCS***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2771664)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***		***MS***	***MSD***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2771664)										
HK1952043-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	80.1	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1952106**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **09-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **18-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 09-Dec-2019 to 18-Dec-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1952106

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

TCLP extraction started date: xxxxxxxxx.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S73**	----	----	----	----
			Client sampling date / time	07-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1952106-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2771664)								
HK1952043-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2771664)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	95.5	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2771664)										
HK1952043-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	80.1	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953216**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953216

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S74**	----	----	----	----
			Client sampling date / time	09-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953216-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	LD003-TCLP-S74	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	LD003-TCLP-S74	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953225**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953225

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S75**	----	----	----	----
			Client sampling date / time	10-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953225-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***	***LOR***	***Unit***	***Original Result***	***Duplicate Result***	***RPD (%)***
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953227**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953227

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S76**	----	----	----	----
			Client sampling date / time	10-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953227-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

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CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953230**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953230

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S77**	----	----	----	----
			Client sampling date / time	10-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953230-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

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CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953232**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953232

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S78**	**----**	**----**	**----**	**----**
			Client sampling date / time	11-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953232-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

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CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953234**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Specific Comments for Work Order: HK1953234

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S79**	----	----	----	----
			Client sampling date / time	12-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953234-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***	***LOR***	***Unit***	***Original Result***	***Duplicate Result***	***RPD (%)***
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	***CAS Number***	***LOR***	***Unit***	***Result***		***LCS***	***DCS***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	***Client sample ID***	***Method: Compound***	***CAS Number***		***MS***	***MSD***	***Low***	***High***	***Value***	***Control Limit***
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	**BLACK & VEATCH HONG KONG LTD**	Laboratory	**ALS Technichem (HK) Pty Ltd**	Page	**1 of 4**
Contact	**GO WAI KIT, VICTOR**	Contact	**Richard Fung**	Work Order	**HK1953238**
Address	**43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	**11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	**----**	E-mail	**richard.fung@alsglobal.com**		
Telephone	**9686 4575**	Telephone	**+852 2610 1044**		
Facsimile	**----**	Facsimile	**+852 2610 2021**		
Project	**YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	**16-Dec-2019**
Order number	**S3-SC073 (YL/2017/03)**	Quote number	**HKE/2151/2019**	Issue Date	**27-Dec-2019**
C-O-C number	**----**			No. of samples received	**1**
Site	**----**			No. of samples analysed	**1**

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Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953238

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S80**	----	----	----	----
			Client sampling date / time	12-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953238-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953241**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**

				Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953241

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S81**	----	----	----	----
			Client sampling date / time	12-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953241-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953244**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953244

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S82**	----	----	----	----
			Client sampling date / time	13-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953244-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953248**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953248

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S83**	**----**	**----**	**----**	**----**
			Client sampling date / time	13-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953248-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	**BLACK & VEATCH HONG KONG LTD**	Laboratory	**ALS Technichem (HK) Pty Ltd**	Page	**1 of 4**
Contact	**GO WAI KIT, VICTOR**	Contact	**Richard Fung**	**Work Order**	**HK1953250**
Address	**43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	**11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	**----**	E-mail	**richard.fung@alsglobal.com**		
Telephone	**9686 4575**	Telephone	**+852 2610 1044**		
Facsimile	**----**	Facsimile	**+852 2610 2021**		
Project	**YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	**16-Dec-2019**
Order number	**S3-SC073 (YL/2017/03)**	Quote number	**HKE/2151/2019**	Issue Date	**27-Dec-2019**
C-O-C number	**----**			No. of samples received	**1**
Site	**----**			No. of samples analysed	**1**

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Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953250

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98. E

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S84**	----	----	----	----
			Client sampling date / time	14-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953250-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1953252**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **16-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **27-Dec-2019**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1953252

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S85**	**----**	**----**	**----**	**----**
			Client sampling date / time	14-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1953252-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2779633)								
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2779633)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	96.7	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2779633)										
HK1953216-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	97.9	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1954195**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **23-Dec-2019**
Issue Date : **03-Jan-2020**
No. of samples received : **1**
No. of samples analysed : **1**

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Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954195

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S86**	----	----	----	----
			Client sampling date / time	16-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954195-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2788076)								
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2788076)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	104	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2788076)										
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	102	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1954196**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **23-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **02-Jan-2020**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Dec-2019 to 31-Dec-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954196

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S87**	----	----	----	----
			Client sampling date / time	16-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954196-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2788076)								
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2788076)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	104	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2788076)										
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	102	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066 TEST

CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	**Work Order**	: HK1954198
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 23-Dec-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 02-Jan-2020
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Dec-2019 to 31-Dec-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954198

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S88**	----	----	----	----
			Client sampling date / time	17-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954198-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Laboratory Duplicate (DUP) Report*				
				LOR	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2788076)								
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	*CAS Number*	*Method Blank (MB) Report*			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
		LOR	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2788076)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	104	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report*						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
					MS	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2788076)										
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	102	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1954199**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **23-Dec-2019**
Issue Date : **02-Jan-2020**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Dec-2019 to 31-Dec-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954199

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S89**	----	----	----	----
			Client sampling date / time	18-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954199-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2788076)								
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2788076)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	104	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2788076)										
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	102	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
TEST

CERTIFICATE OF ANALYSIS

Client	**BLACK & VEATCH HONG KONG LTD**	Laboratory	**ALS Technichem (HK) Pty Ltd**	Page	**1 of 4**
Contact	**GO WAI KIT, VICTOR**	Contact	**Richard Fung**	**Work Order**	**HK1954200**
Address	**43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	**11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	**----**	E-mail	**richard.fung@alsglobal.com**		
Telephone	**9686 4575**	Telephone	**+852 2610 1044**		
Facsimile	**----**	Facsimile	**+852 2610 2021**		
Project	**YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	**23-Dec-2019**
Order number	**S3-SC073 (YL/2017/03)**	Quote number	**HKE/2151/2019**	Issue Date	**02-Jan-2020**
C-O-C number	**----**			No. of samples received	**1**
Site	**----**			No. of samples analysed	**1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Wong Wing , Kenneth	**Manager - Metals**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 23-Dec-2019 to 31-Dec-2019.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954200

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S90**	----	----	----	----
			Client sampling date / time	18-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954200-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2788076)								
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2788076)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	1 mg/L	104	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2788076)										
HK1953554-001	Anonymous	**EG020: Arsenic**	7440-38-2	1 mg/L	102	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1954838**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **31-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **13-Jan-2020**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 31-Dec-2019 to 10-Jan-2020.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954838

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S91**	----	----	----	----
			Client sampling date / time	19-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954838-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2801266)								
HK1954838-001	LD003-TCLP-S91	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2801266)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.5 mg/L	102	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2801266)										
HK1954838-001	LD003-TCLP-S91	**EG020: Arsenic**	7440-38-2	0.5 mg/L	99.5	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: BLACK & VEATCH HONG KONG LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: GO WAI KIT, VICTOR	Contact	: Richard Fung	Work Order	: HK1954839
Address	: 43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: ----	E-mail	: richard.fung@alsglobal.com		
Telephone	: 9686 4575	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	: 31-Dec-2019
Order number	: S3-SC073 (YL/2017/03)	Quote number	: HKE/2151/2019	Issue Date	: 13-Jan-2020
C-O-C number	: ----			No. of samples received	: 1
Site	: ----			No. of samples analysed	: 1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 31-Dec-2019 to 10-Jan-2020.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954839

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S92**	----	----	----	----
			Client sampling date / time	19-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954839-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2801266)								
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2801266)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.5 mg/L	102	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2801266)										
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.5 mg/L	99.5	----	75.0	125	----	----

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

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CERTIFICATE OF ANALYSIS

Client : **BLACK & VEATCH HONG KONG LTD**
Contact : **GO WAI KIT, VICTOR**
Address : **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**
E-mail : **----**
Telephone : **9686 4575**
Facsimile : **----**

Laboratory : **ALS Technichem (HK) Pty Ltd**
Contact : **Richard Fung**
Address : **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**
E-mail : **richard.fung@alsglobal.com**
Telephone : **+852 2610 1044**
Facsimile : **+852 2610 2021**

Page : **1 of 4**
Work Order : **HK1954840**

Project : **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**
Order number : **S3-SC073 (YL/2017/03)**
Quote number : **HKE/2151/2019**
C-O-C number : **----**
Site : **----**

Date Samples Received : **31-Dec-2019**
Issue Date : **13-Jan-2020**
No. of samples received : **1**
No. of samples analysed : **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Leung Chak Cheong , Mike	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954840

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S93**	----	----	----	----
			Client sampling date / time	19-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954840-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD (%)*
EG: Metals and Major Cations (QC Lot: 2801266)								
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			*Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report*						
					Spike Concentration	*Spike Recovery (%)*		*Recovery Limits(%)*		*RPD (%)*	
Method: Compound	*CAS Number*	*LOR*	*Unit*	*Result*		*LCS*	*DCS*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2801266)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.5 mg/L	102	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	*Spike Recovery (%)*		*Recovery Limits (%)*		*RPD (%)*	
Laboratory sample ID	*Client sample ID*	*Method: Compound*	*CAS Number*		*MS*	*MSD*	*Low*	*High*	*Value*	*Control Limit*
EG: Metals and Major Cations (QC Lot: 2801266)										
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.5 mg/L	99.5	----	75.0	125	----	----

CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1954841**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **31-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **13-Jan-2020**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954841

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			*Client sample ID*	**LD003-TCLP-S94**	----	----	----	----
			Client sampling date / time	20-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954841-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2801266)								
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2801266)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.5 mg/L	102	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2801266)										
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.5 mg/L	99.5	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

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ANALYTICAL CHEMISTRY & TESTING SERVICES

HOKLAS 066
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CERTIFICATE OF ANALYSIS

Client	: **BLACK & VEATCH HONG KONG LTD**	Laboratory	: **ALS Technichem (HK) Pty Ltd**	Page	: **1 of 4**
Contact	: **GO WAI KIT, VICTOR**	Contact	: **Richard Fung**	**Work Order**	: **HK1954842**
Address	: **43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG**	Address	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**		
E-mail	: **----**	E-mail	: **richard.fung@alsglobal.com**		
Telephone	: **9686 4575**	Telephone	: **+852 2610 1044**		
Facsimile	: **----**	Facsimile	: **+852 2610 2021**		
Project	: **YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS**			Date Samples Received	: **31-Dec-2019**
Order number	: **S3-SC073 (YL/2017/03)**	Quote number	: **HKE/2151/2019**	Issue Date	: **13-Jan-2020**
C-O-C number	: **----**			No. of samples received	: **1**
Site	: **----**			No. of samples analysed	: **1**

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954842

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**

			Client sample ID	**LD003-TCLP-S95**	**----**	**----**	**----**	**----**
			Client sampling date / time	20-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954842-001**	**--------**	**--------**	**--------**	**--------**
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	**----**	**----**	**----**	**----**
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	**----**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2801266)								
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2801266)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.5 mg/L	102	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2801266)										
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.5 mg/L	99.5	----	75.0	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

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CERTIFICATE OF ANALYSIS

Client	BLACK & VEATCH HONG KONG LTD	Laboratory	ALS Technichem (HK) Pty Ltd	Page	1 of 4
Contact	GO WAI KIT, VICTOR	Contact	Richard Fung	**Work Order**	HK1954843
Address	43/F, AIA KOWLOON TOWER, 100 HOW MING STREET, KWUN TONG, KOWLOON, HONG KONG	Address	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	----	E-mail	richard.fung@alsglobal.com		
Telephone	9686 4575	Telephone	+852 2610 1044		
Facsimile	----	Facsimile	+852 2610 2021		
Project	YL/2017/03 DEVELOPMENT OF LOK MA CHAU LOOP – LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS			Date Samples Received	31-Dec-2019
Order number	S3-SC073 (YL/2017/03)	Quote number	HKE/2151/2019	Issue Date	13-Jan-2020
C-O-C number	----			No. of samples received	1
Site	----			No. of samples analysed	1

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Mike **Leung Chak Cheong , Mike**	**Senior Chemist**	**Metals_ENV**

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1954843

Sample(s) was/ were picked up from client by ALS staff . Sample(s) arrived laboratory in chilled condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.

TCLP Leachate sample(s) were filtered prior to dissolved metal analysis.

The metal concentrations reported are those determined on the TCLP leachate. Extraction Fluid #1 pH 4.88 - 4.98.

TCLP extract were filtered prior to the determination of metals.

Analytical Results

Sub-Matrix: **TCLP LEACHATE**			Client sample ID	**LD003-TCLP-S96**	----	----	----	----
			Client sampling date / time	20-Dec-2019	----	----	----	----
Compound	*CAS Number*	*LOR*	*Unit*	**HK1954843-001**	--------	--------	--------	--------
EG: Metals and Major Cations								
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	----	----	----	----
Sample Preparation Method								
E-TCLP: Extraction Fluid Number	----	1	--	**1**	----	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

				Laboratory Duplicate (DUP) Report				
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
EG: Metals and Major Cations (QC Lot: 2801266)								
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.1	mg/L	<0.1	<0.1	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

		Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits(%)		RPD (%)	
Method: Compound	CAS Number	LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2801266)											
EG020: Arsenic	7440-38-2	0.1	mg/L	<0.1	0.5 mg/L	102	----	85.0	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: **WATER**

				Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number		MS	MSD	Low	High	Value	Control Limit
EG: Metals and Major Cations (QC Lot: 2801266)										
HK1954838-001	Anonymous	**EG020: Arsenic**	7440-38-2	0.5 mg/L	99.5	----	75.0	125	----	----

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S01
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.8	Wet mass of specimen	g	1235.9
Length of specimen	mm	150.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4632.5	Moisture content	%	-
Volume of specimen	cm^3	696.26	Bulk density	Mg/m^3	1.78
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

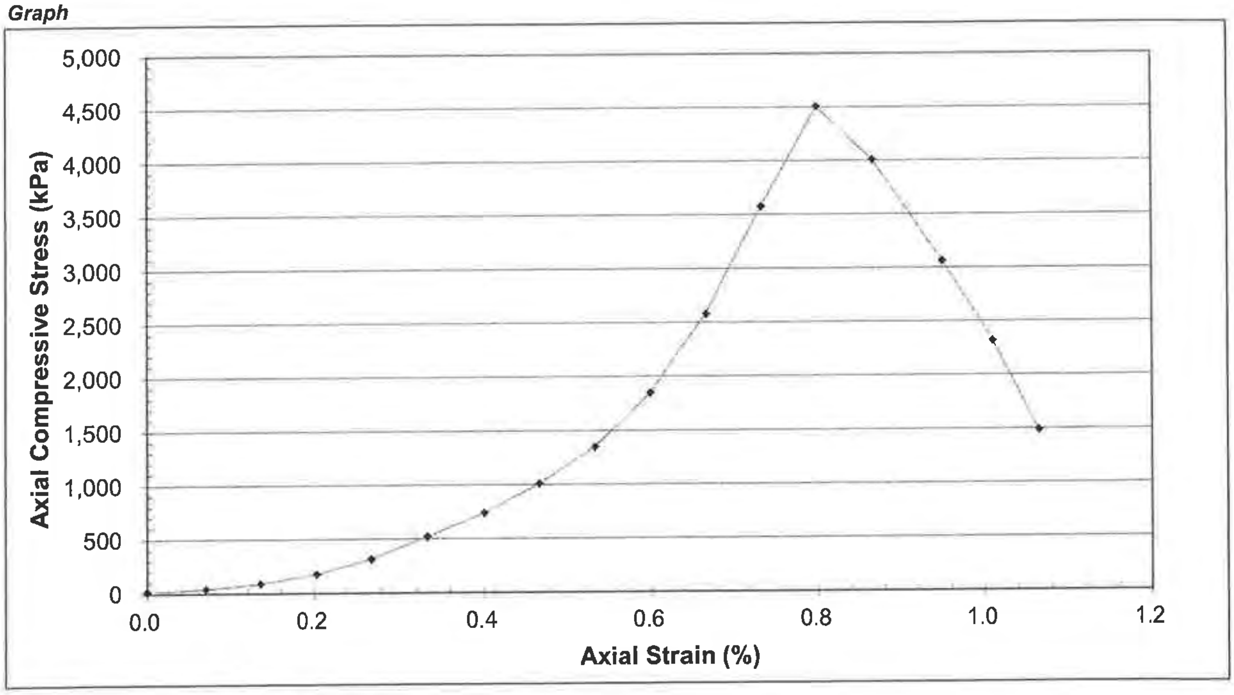
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen

Compression Results

Maximum axial stress	4506	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.80	%		
Unconfined compressive strength, (q_u)	4506	kPa		

Graph



Remarks : Mixing Date : 2/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: LD03-S01
Sample Type[#]: PT75
Depth (m)[#]: -
Actual Depth (m): -
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.[#]: -
Date Received: 15/10/2019

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.3
		Original area (A_o)	mm^2	4632.5

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4632.5	15.11
0.10	0.1	-	0.19	190	4635.7	40.99
0.20	0.1	-	0.42	420	4638.7	90.54
0.31	0.2	-	0.82	820	4641.9	176.65
0.40	0.3	-	1.46	1460	4644.9	314.32
0.50	0.3	-	2.43	2430	4648.0	522.81
0.60	0.4	-	3.43	3430	4651.1	737.47
0.70	0.5	-	4.70	4700	4654.2	1009.85
0.80	0.5	-	6.28	6280	4657.3	1348.43
0.90	0.6	-	8.61	8610	4660.4	1847.48
1.00	0.7	-	12.03	12030	4663.5	2579.59
1.10	0.7	-	16.70	16700	4666.7	3578.58
1.20	0.8	-	21.04	21040	4669.8	$\boxed{4505.56}$
1.30	0.9	-	18.72	18720	4672.9	4006.04
1.43	1.0	-	14.32	14320	4676.9	3061.86
1.52	1.0	-	10.85	10850	4679.8	2318.49
1.60	1.1	-	6.96	6960	4682.3	1486.45

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S02
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.6	Wet mass of specimen	g	1218.9
Length of specimen	mm	151.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4608.4	Moisture content	%	-
Volume of specimen	cm^3	699.09	Bulk density	Mg/m^3	1.74
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

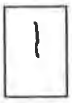
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

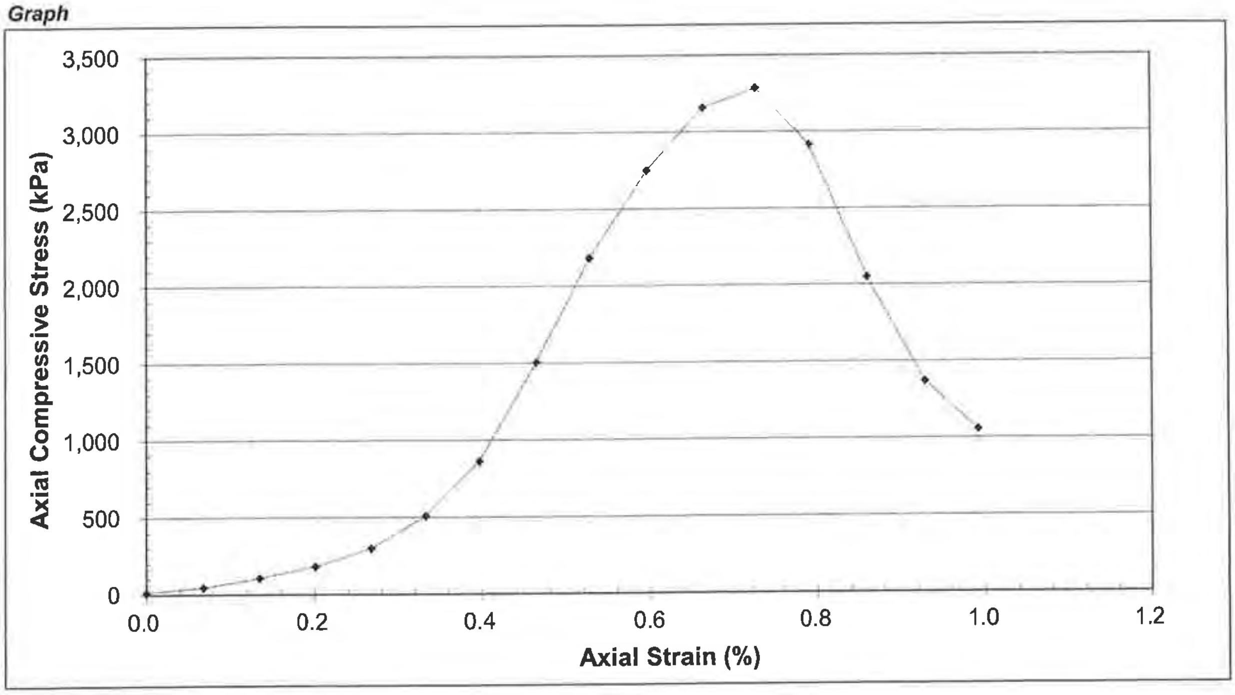
Compression Results

Maximum axial stress	3285	kPa
Axial strain at failure	0.73	%
Unconfined compressive strength, (q_u)	3285	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 2/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S02
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.7
		Original area (A_o)	mm^2	4608.4

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.7%

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4608.4	13.02
0.10	0.1	-	0.21	210	4611.5	45.54
0.20	0.1	-	0.49	490	4614.6	106.19
0.30	0.2	-	0.83	830	4617.6	179.75
0.40	0.3	-	1.38	1380	4620.7	298.66
0.50	0.3	-	2.35	2350	4623.7	508.25
0.60	0.4	-	3.99	3990	4626.7	862.38
0.70	0.5	-	6.96	6960	4629.9	1503.29
0.80	0.5	-	10.10	10100	4632.8	2180.11
0.90	0.6	-	12.75	12750	4636.0	2750.24
1.01	0.7	-	14.65	14650	4639.1	3157.94
1.10	0.7	-	15.25	15250	4642.1	$\boxed{3285.16}$
1.20	0.8	-	13.54	13540	4645.1	2914.89
1.30	0.9	-	9.53	9530	4648.3	2050.20
1.41	0.9	-	6.37	6370	4651.5	1369.44
1.50	1.0	-	4.92	4920	4654.5	1057.04

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S03
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.5	Wet mass of specimen	g	1267.5
Length of specimen	mm	151.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	712.78	Bulk density	Mg/m^3	1.78
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

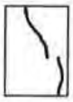
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

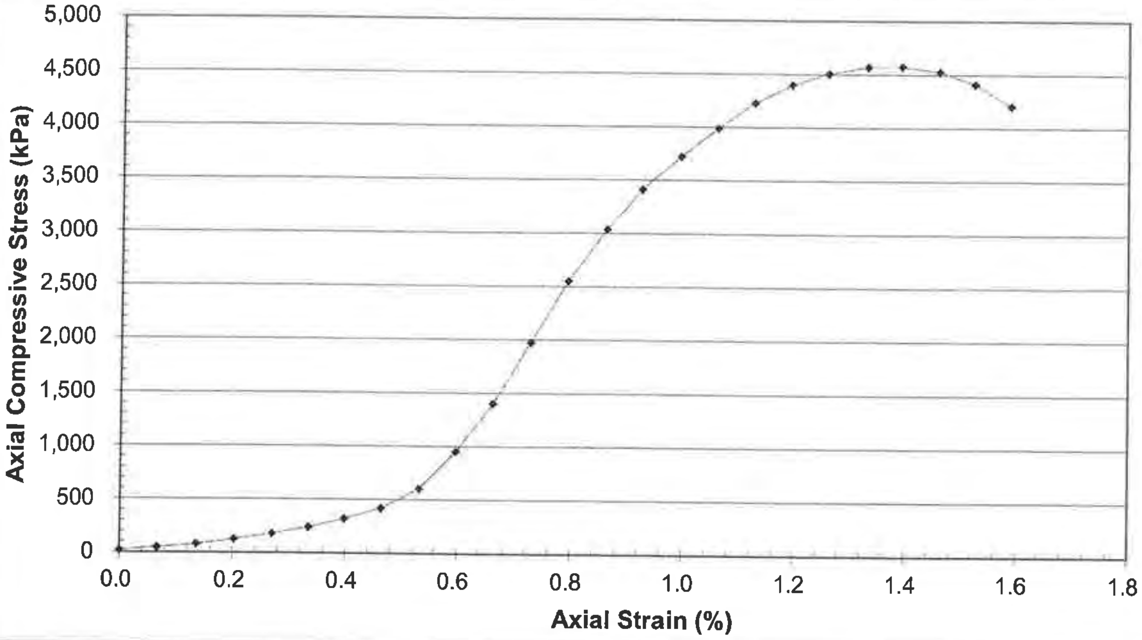
Compression Results

Maximum axial stress	4574	kPa
Axial strain at failure	1.4	%
Unconfined compressive strength, (q_u)	4574	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 2/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S03
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.1
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1.6% of axial strain and the peak axial compressive stress is reached at 1.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4717.3	19.08
0.10	0.1	-	0.22	220	4720.4	46.61
0.21	0.1	-	0.37	370	4723.7	78.33
0.31	0.2	-	0.59	590	4726.8	124.82
0.41	0.3	-	0.85	850	4730.0	179.70
0.51	0.3	-	1.13	1130	4733.1	238.74
0.60	0.4	-	1.52	1520	4736.2	320.93
0.70	0.5	-	1.99	1990	4739.3	419.89
0.81	0.5	-	2.86	2860	4742.6	603.05
0.90	0.6	-	4.51	4510	4745.7	950.34
1.00	0.7	-	6.64	6640	4748.8	1398.26
1.10	0.7	-	9.38	9380	4751.9	1973.94
1.20	0.8	-	12.13	12130	4755.1	2550.95
1.30	0.9	-	14.44	14440	4758.4	3034.66
1.40	0.9	-	16.24	16240	4761.4	3410.73
1.50	1.0	-	17.73	17730	4764.7	3721.12
1.60	1.1	-	19.01	19010	4767.8	3987.12
1.70	1.1	-	20.17	20170	4771.0	4227.62
1.80	1.2	-	21.01	21010	4774.3	4400.65
1.90	1.3	-	21.53	21530	4777.5	4506.57
2.01	1.3	-	21.85	21850	4780.9	4570.27
2.10	1.4	-	21.88	21880	4783.9	$\boxed{4573.69}$
2.21	1.5	-	21.67	21670	4787.2	4526.67
2.30	1.5	-	21.13	21130	4790.3	4411.02
2.40	1.6	-	20.16	20160	4793.5	4205.70

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HOKLAS 264
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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S04
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1285.0
Length of specimen	mm	152.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	710.11	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

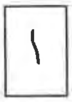
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

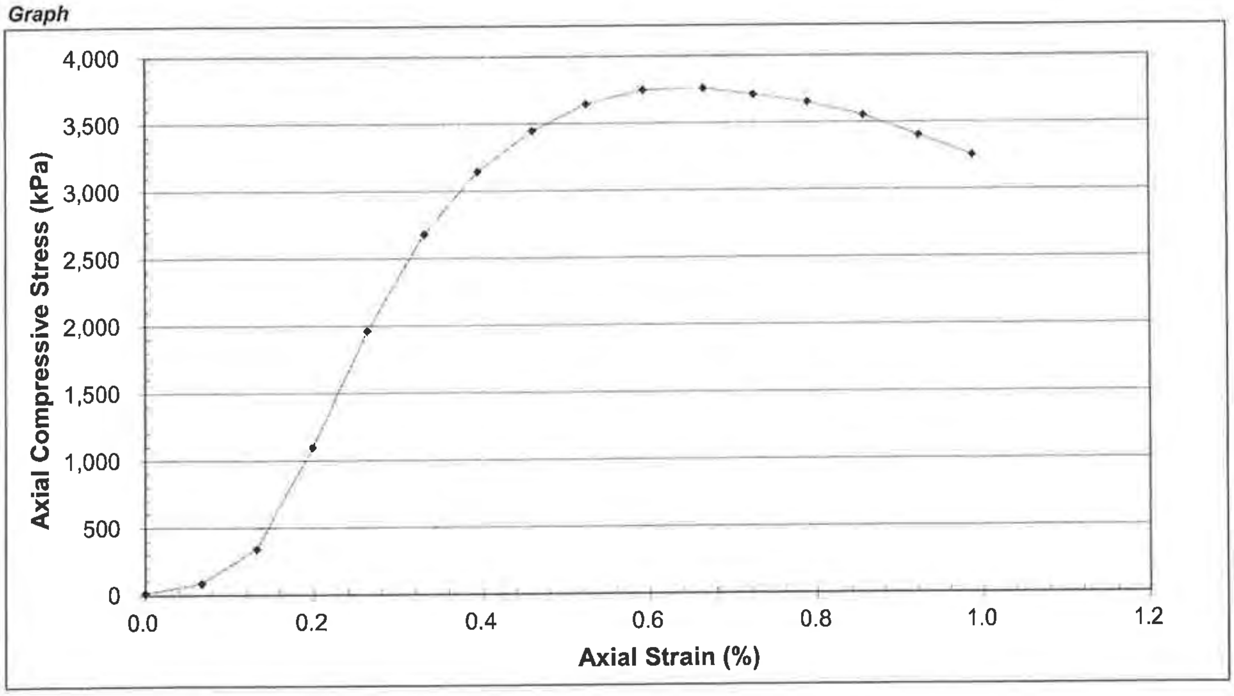
Compression Results

Maximum axial stress	3760	kPa
Axial strain at failure	0.67	%
Unconfined compressive strength, (q_u)	3760	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 3/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 16 October 2019

Certified by :
HUI King Fai

Date : 21 October 2019

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S04
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.1
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4668.7	12.85
0.10	0.1	-	0.40	400	4671.8	85.62
0.20	0.1	-	1.59	1590	4674.9	340.11
0.30	0.2	-	5.13	5130	4678.0	1096.62
0.40	0.3	-	9.18	9180	4681.0	1961.10
0.50	0.3	-	12.55	12550	4684.2	2679.21
0.60	0.4	-	14.74	14740	4687.2	3144.72
0.70	0.5	-	16.17	16170	4690.3	3447.51
0.80	0.5	-	17.11	17110	4693.4	3645.53
0.90	0.6	-	17.61	17610	4696.6	3749.51
1.01	0.7	-	17.67	17670	4700.0	3759.57
1.10	0.7	-	17.45	17450	4702.8	3710.55
1.20	0.8	-	17.19	17190	4705.9	3652.87
1.30	0.9	-	16.74	16740	4709.0	3554.87
1.40	0.9	-	16.03	16030	4712.2	3401.79
1.50	1.0	-	15.35	15350	4715.3	3255.37

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S05
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1275.9
Length of specimen	mm	151.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	709.11	Bulk density	Mg/m^3	1.80
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

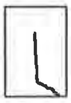
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

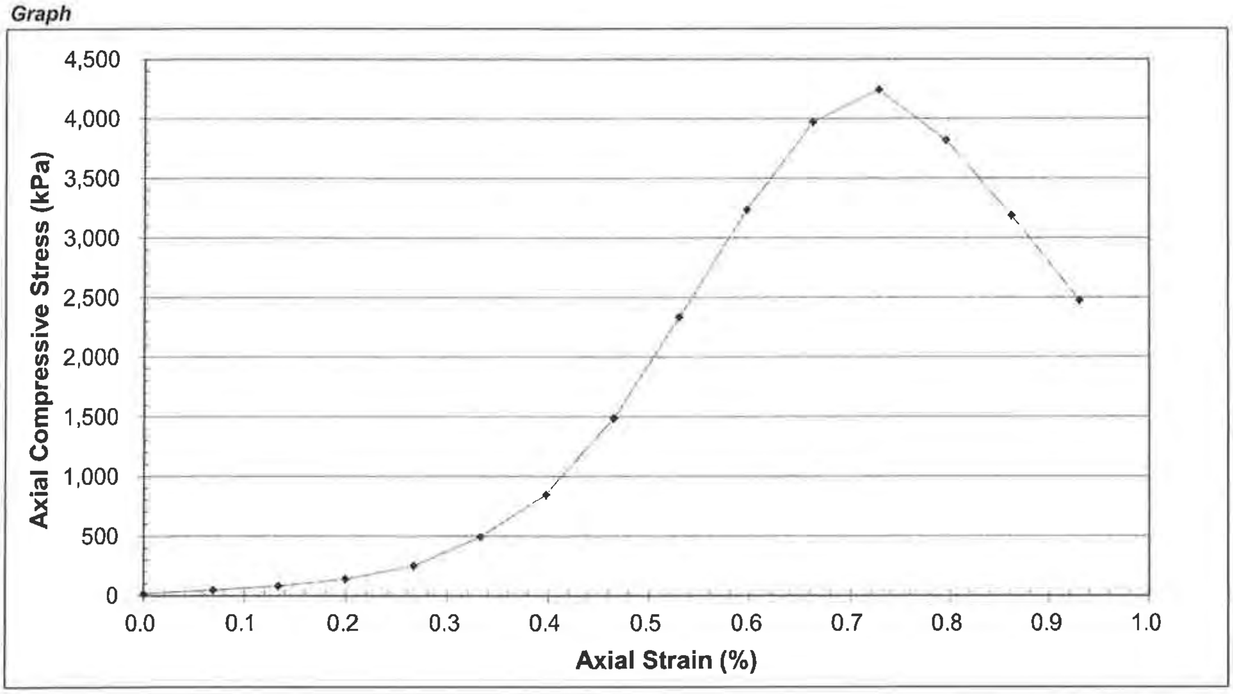
Compression Results

Maximum axial stress	4243	kPa
Axial strain at failure	0.73	%
Unconfined compressive strength, (q_u)	4243	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 3/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S05
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.1
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.
Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.
Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4693.0	17.05
0.10	0.1	-	0.22	220	4696.2	46.85
0.20	0.1	-	0.38	380	4699.3	80.86
0.30	0.2	-	0.66	660	4702.3	140.36
0.40	0.3	-	1.18	1180	4705.5	250.77
0.50	0.3	-	2.32	2320	4708.6	492.71
0.60	0.4	-	3.98	3980	4711.7	844.70
0.70	0.5	-	7.01	7010	4714.9	1486.78
0.80	0.5	-	11.01	11010	4718.0	2333.62
0.90	0.6	-	15.27	15270	4721.2	3234.37
1.00	0.7	-	18.76	18760	4724.3	3970.95
1.10	0.7	-	20.06	20060	4727.4	$\boxed{4243.35}$
1.20	0.8	-	18.07	18070	4730.6	3819.80
1.30	0.9	-	15.08	15080	4733.8	3185.62
1.41	0.9	-	11.72	11720	4737.0	2474.12

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HOKLAS 264
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Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S06
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.5	Wet mass of specimen	g	1290.1
Length of specimen	mm	153.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	722.22	Bulk density	Mg/m^3	1.79
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement

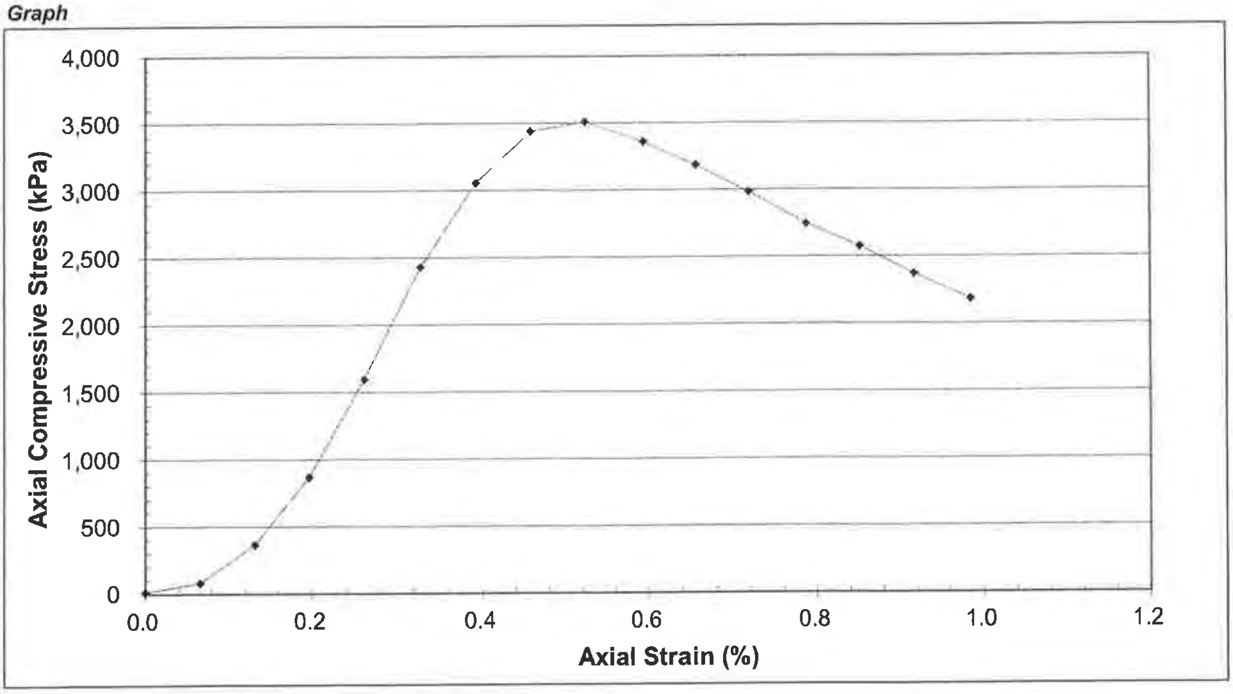
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3511	kPa
Axial strain at failure	0.52	%
Unconfined compressive strength, (q_u)	3511	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 3/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: LD03-S06
Sample Type[#]: PT75

Depth (m)[#]: -
Actual Depth (m): -
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.[#]: -
Date Received: 15/10/2019

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.1
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4717.3	12.72
0.10	0.1	-	0.39	390	4720.4	82.62
0.20	0.1	-	1.72	1720	4723.5	364.14
0.30	0.2	-	4.10	4100	4726.6	867.44
0.40	0.3	-	7.55	7550	4729.7	1596.31
0.50	0.3	-	11.50	11500	4732.8	2429.86
0.60	0.4	-	14.47	14470	4735.9	3055.39
0.70	0.5	-	16.30	16300	4739.0	3439.55
0.80	0.5	-	16.65	16650	4742.1	$\boxed{3511.10}$
0.91	0.6	-	15.95	15950	4745.5	3361.10
1.00	0.7	-	15.13	15130	4748.4	3186.31
1.10	0.7	-	14.18	14180	4751.4	2984.36
1.21	0.8	-	13.05	13050	4754.8	2744.62
1.30	0.9	-	12.25	12250	4757.8	2574.71
1.40	0.9	-	11.29	11290	4761.0	2371.37
1.51	1.0	-	10.40	10400	4764.2	2182.94

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S07
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1250.5
Length of specimen	mm	150.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	703.06	Bulk density	Mg/m^3	1.78
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

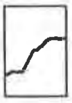
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

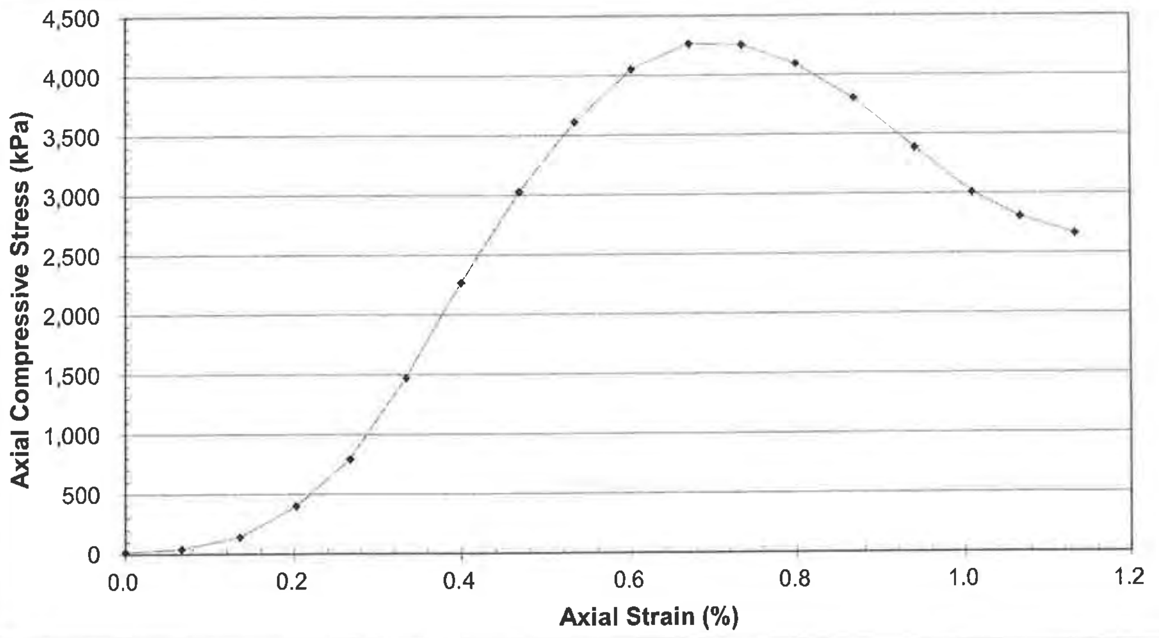
Compression Results

Maximum axial stress	4265	kPa
Axial strain at failure	0.67	%
Unconfined compressive strength, (q_u)	4265	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 3/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
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Client#:	Sang Hing - Kuly Joint Venture
Project#:	YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#:	-	Depth (m)#:	-	Date of Test:	16/10/2019
Sample No.#:	LD03-S07	Actual Depth (m):	-	W.O. No.#:	-
Sample Type#:	PT75	Sample Origin#:	Contaminated soil mixed with 10% cement and 10% sand	Date Received:	15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.2
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4680.8	14.95
0.10	0.1	-	0.18	180	4684.0	38.43
0.20	0.1	-	0.67	670	4687.2	142.94
0.30	0.2	-	1.88	1880	4690.3	400.82
0.40	0.3	-	3.71	3710	4693.3	790.48
0.50	0.3	-	6.91	6910	4696.5	1471.30
0.60	0.4	-	10.65	10650	4699.7	2266.13
0.70	0.5	-	14.23	14230	4702.8	3025.84
0.80	0.5	-	17.00	17000	4705.9	3612.45
0.90	0.6	-	19.08	19080	4709.2	4051.68
1.01	0.7	-	20.10	20100	4712.4	4265.30
1.10	0.7	-	20.06	20060	4715.5	4254.05
1.20	0.8	-	19.33	19330	4718.6	4096.57
1.30	0.9	-	17.96	17960	4721.8	3803.63
1.41	0.9	-	16.00	16000	4725.3	3386.05
1.52	1.0	-	14.23	14230	4728.5	3009.38
1.60	1.1	-	13.27	13270	4731.3	2804.70
1.70	1.1	-	12.61	12610	4734.5	2663.43

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Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S08
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.0	Wet mass of specimen	g	1275.4
Length of specimen	mm	151.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	704.08	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

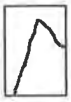
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen

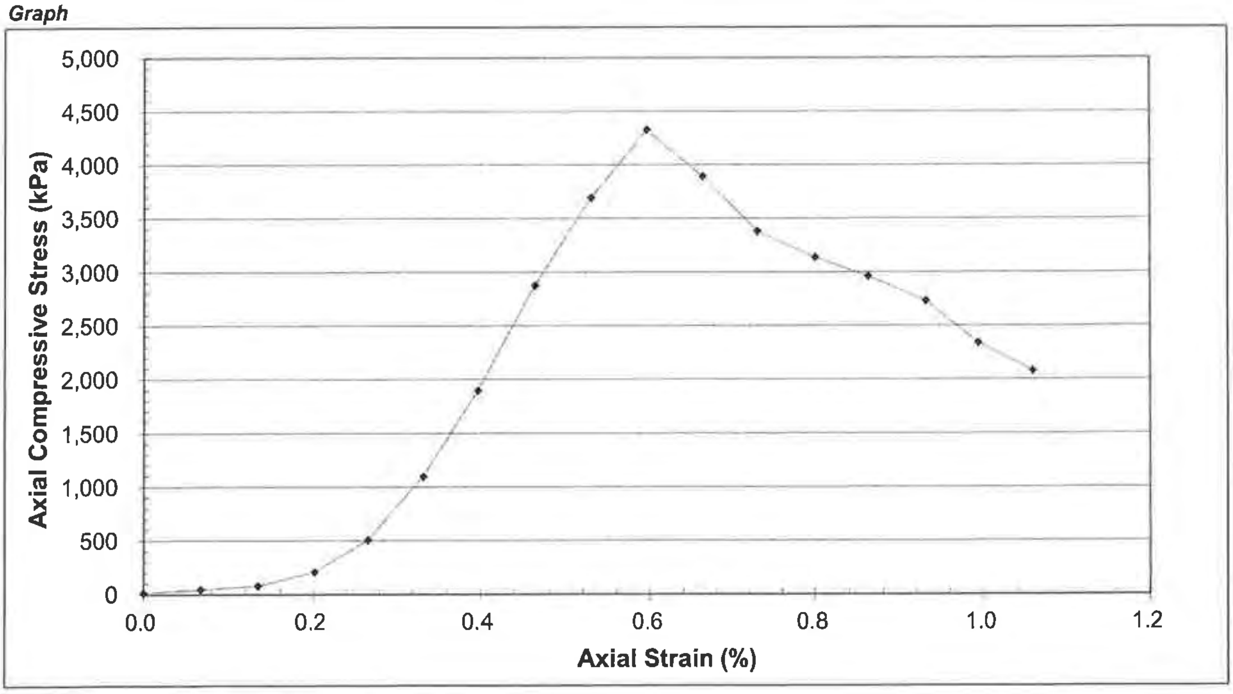
Compression Results

Maximum axial stress	4327	kPa
Axial strain at failure	0.60	%
Unconfined compressive strength, (q_u)	4327	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 3/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
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Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S08
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.2
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.6%.
Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.
Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4656.6	12.88
0.10	0.1	-	0.21	210	4659.7	45.07
0.20	0.1	-	0.37	370	4662.9	79.35
0.30	0.2	-	0.97	970	4666.0	207.89
0.40	0.3	-	2.37	2370	4669.0	507.60
0.50	0.3	-	5.12	5120	4672.1	1095.86
0.60	0.4	-	8.86	8860	4675.2	1895.12
0.70	0.5	-	13.45	13450	4678.3	2874.97
0.80	0.5	-	17.29	17290	4681.4	3693.32
0.90	0.6	-	20.27	20270	4684.5	4327.00
1.00	0.7	-	18.24	18240	4687.7	3891.04
1.10	0.7	-	15.86	15860	4690.9	3381.03
1.21	0.8	-	14.72	14720	4694.2	3135.81
1.30	0.9	-	13.91	13910	4697.1	2961.40
1.41	0.9	-	12.84	12840	4700.4	2731.68
1.50	1.0	-	10.99	10990	4703.3	2336.63
1.60	1.1	-	9.78	9780	4706.5	2077.99

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Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S09
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1276.2
Length of specimen	mm	152.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	712.42	Bulk density	Mg/m^3	1.79
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

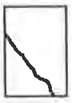
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen

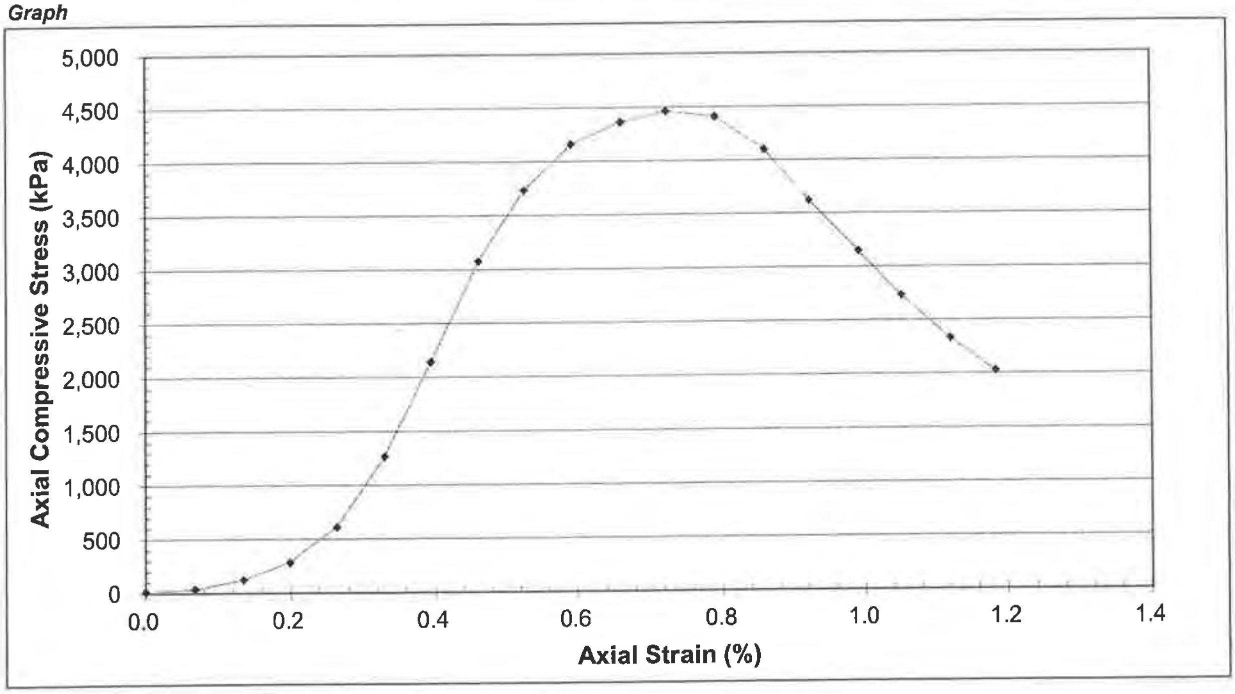
Compression Results

Maximum axial stress	4462	kPa
Axial strain at failure	0.72	%
Unconfined compressive strength, (q_u)	4462	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 4/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S09
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

# Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.2
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4680.8	12.82
0.10	0.1	-	0.17	170	4684.0	36.29
0.21	0.1	-	0.59	590	4687.2	125.88
0.30	0.2	-	1.33	1330	4690.2	283.57
0.40	0.3	-	2.87	2870	4693.2	611.52
0.50	0.3	-	5.94	5940	4696.3	1264.82
0.60	0.4	-	10.07	10070	4699.4	2142.84
0.70	0.5	-	14.45	14450	4702.5	3072.81
0.80	0.5	-	17.56	17560	4705.6	3731.71
0.90	0.6	-	19.58	19580	4708.8	4158.21
1.01	0.7	-	20.56	20560	4712.0	4363.33
1.10	0.7	-	21.04	21040	4715.0	$\boxed{4462.37}$
1.20	0.8	-	20.81	20810	4718.1	4410.64
1.31	0.9	-	19.36	19360	4721.4	4100.49
1.40	0.9	-	17.11	17110	4724.4	3621.65
1.51	1.0	-	14.88	14880	4727.7	3147.41
1.60	1.1	-	12.92	12920	4730.6	2731.17
1.71	1.1	-	11.04	11040	4733.9	2332.11
1.80	1.2	-	9.60	9600	4736.9	2026.64

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: LD03-S10
Sample Type[#]: PT75

Depth (m)[#]: -
Actual Depth (m): -
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.[#]: -
Date Received: 15/10/2019

[#] Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1282.9
Length of specimen	mm	151.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	708.25	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

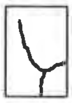
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

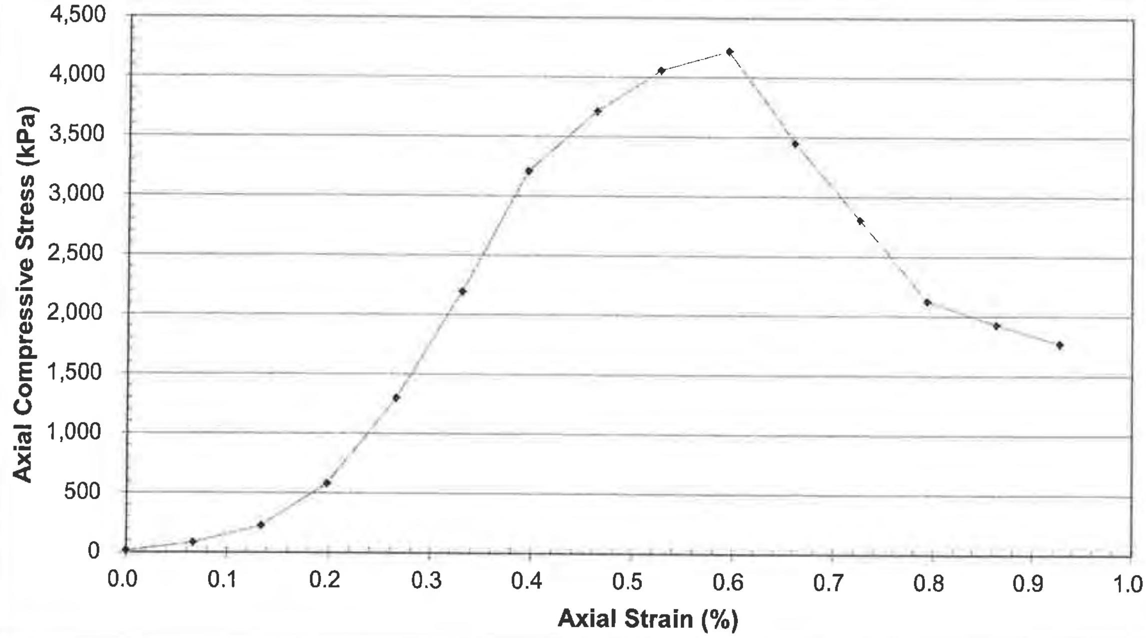
Compression Results

Maximum axial stress	4220	kPa
Axial strain at failure	0.59	%
Unconfined compressive strength, (q_u)	4220	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 9/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S10
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.7
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4668.7	12.85
0.10	0.1	-	0.39	390	4671.8	83.48
0.20	0.1	-	1.06	1060	4675.0	226.74
0.30	0.2	-	2.71	2710	4678.0	579.31
0.40	0.3	-	6.08	6080	4681.1	1298.83
0.50	0.3	-	10.28	10280	4684.2	2194.61
0.60	0.4	-	15.04	15040	4687.3	3208.69
0.70	0.5	-	17.42	17420	4690.5	3713.92
0.80	0.5	-	19.04	19040	4693.5	4056.69
0.90	0.6	-	19.82	19820	4696.7	$\boxed{4220.02}$
1.00	0.7	-	16.21	16210	4699.8	3449.10
1.10	0.7	-	13.20	13200	4702.9	2806.80
1.20	0.8	-	10.00	10000	4706.0	2124.93
1.31	0.9	-	9.09	9090	4709.4	1930.20
1.41	0.9	-	8.35	8350	4712.4	1771.92

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Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S11
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.0	Wet mass of specimen	g	1260.8
Length of specimen	mm	150.5	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	700.82	Bulk density	Mg/m^3	1.80
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement

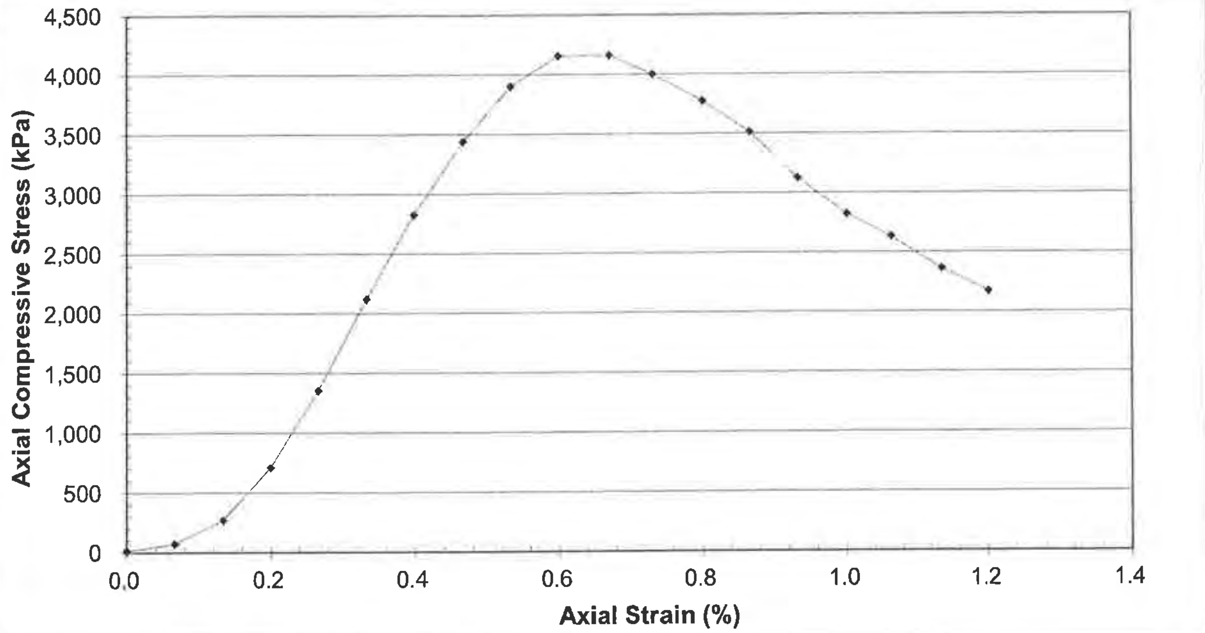
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4162	kPa
Axial strain at failure	0.67	%
Unconfined compressive strength, (q_u)	4162	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 9/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 16 October 2019

Certified by :
HUI King Fai

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
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Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S11
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.5
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.7%.
Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.
Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4656.6	12.88
0.10	0.1	-	0.33	330	4659.7	70.82
0.20	0.1	-	1.26	1260	4662.9	270.22
0.30	0.2	-	3.31	3310	4665.9	709.40
0.40	0.3	-	6.32	6320	4669.0	1353.60
0.50	0.3	-	9.91	9910	4672.2	2121.07
0.60	0.4	-	13.20	13200	4675.3	2823.37
0.70	0.5	-	16.09	16090	4678.4	3439.17
0.80	0.5	-	18.26	18260	4681.5	3900.42
0.90	0.6	-	19.47	19470	4684.7	4156.08
1.01	0.7	-	19.51	19510	4688.1	$\boxed{4161.64}$
1.10	0.7	-	18.77	18770	4691.0	4001.30
1.21	0.8	-	17.72	17720	4694.2	3774.86
1.30	0.9	-	16.50	16500	4697.3	3512.68
1.40	0.9	-	14.69	14690	4700.4	3125.24
1.51	1.0	-	13.27	13270	4703.7	2821.19
1.60	1.1	-	12.38	12380	4706.7	2630.31
1.71	1.1	-	11.13	11130	4710.0	2363.03
1.81	1.2	-	10.23	10230	4713.2	2170.49

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S12
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

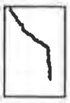
Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1290.7
Length of specimen	mm	151.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	706.38	Bulk density	Mg/m^3	1.83
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

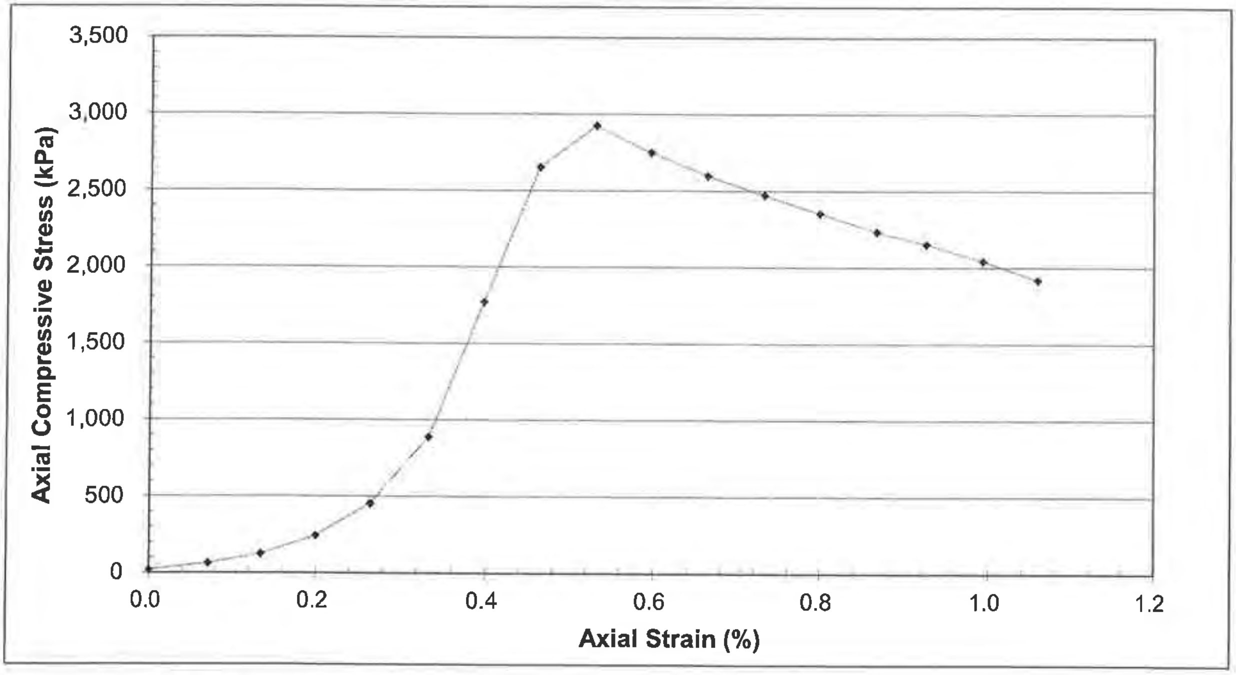
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2925	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.53	%	
Unconfined compressive strength, (q_u)	2925	kPa	

Graph



Remarks : Mixing Date : 9/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 16 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S12
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 16/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.3
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.09*	90	4668.7	19.28
0.11	0.1	-	*0.29*	290	4672.0	62.07
0.20	0.1	-	*0.58*	580	4675.0	124.06
0.30	0.2	-	*1.13*	1130	4678.1	241.55
0.40	0.3	-	*2.12*	2120	4681.1	452.88
0.50	0.3	-	*4.16*	4160	4684.3	888.07
0.60	0.4	-	*8.30*	8300	4687.3	1770.72
0.70	0.5	-	*12.45*	12450	4690.5	2654.32
0.80	0.5	-	*13.73*	13730	4693.6	$\boxed{2925.24}$
0.90	0.6	-	*12.92*	12920	4696.7	2750.87
1.00	0.7	-	*12.21*	12210	4699.9	2597.94
1.11	0.7	-	*11.62*	11620	4703.1	2470.69
1.21	0.8	-	*11.07*	11070	4706.3	2352.15
1.31	0.9	-	*10.52*	10520	4709.5	2233.77
1.40	0.9	-	*10.14*	10140	4712.4	2151.79
1.50	1.0	-	*9.63*	9630	4715.5	2042.18
1.60	1.1	-	*9.05*	9050	4718.7	1917.92

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S13
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 17/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1279.5
Length of specimen	mm	151.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	705.91	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

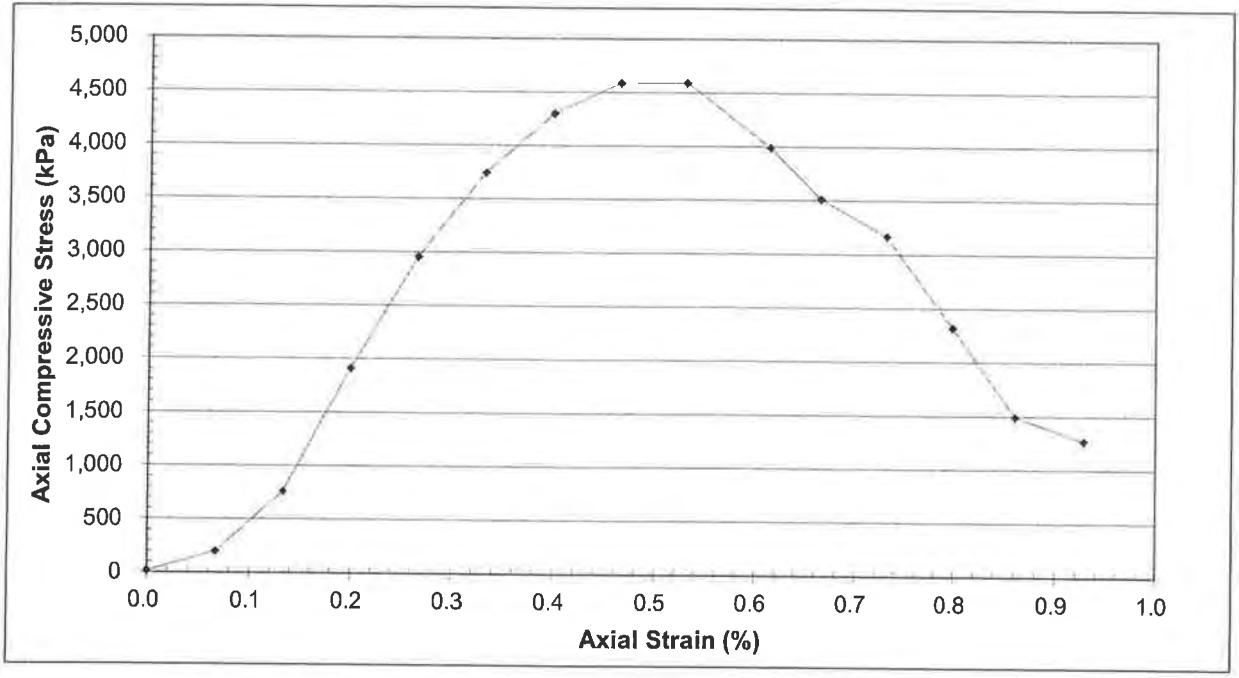
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4591	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.53	%		
Unconfined compressive strength, (q_u)	4591	kPa		

Graph



Remarks : Mixing Date : 10/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 17 October 2019

Certified by :
HUI King Fai

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S13
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 17/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.2
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4668.7	14.99
0.10	0.1	-	0.93	930	4671.8	199.06
0.20	0.1	-	3.55	3550	4674.9	759.37
0.30	0.2	-	8.93	8930	4678.0	1908.92
0.40	0.3	-	13.83	13830	4681.1	2954.41
0.50	0.3	-	17.53	17530	4684.2	3742.33
0.60	0.4	-	20.15	20150	4687.4	4298.74
0.70	0.5	-	21.51	21510	4690.5	4585.83
0.80	0.5	-	21.55	21550	4693.6	$\boxed{4591.33}$
0.93	0.6	-	18.74	18740	4697.6	3989.30
1.01	0.7	-	16.51	16510	4700.0	3512.79
1.11	0.7	-	14.89	14890	4703.1	3166.00
1.21	0.8	-	10.92	10920	4706.3	2320.29
1.30	0.9	-	7.03	7030	4709.2	1492.81
1.40	0.9	-	5.98	5980	4712.5	1268.98

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: LD03-S14
Sample Type[#]: PT75

Depth (m)[#]: -
Actual Depth (m): -
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 17/10/2019
W.O. No.[#]: -
Date Received: 15/10/2019

[#] Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1273.8
Length of specimen	mm	152.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	711.96	Bulk density	Mg/m^3	1.79
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

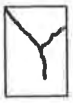
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

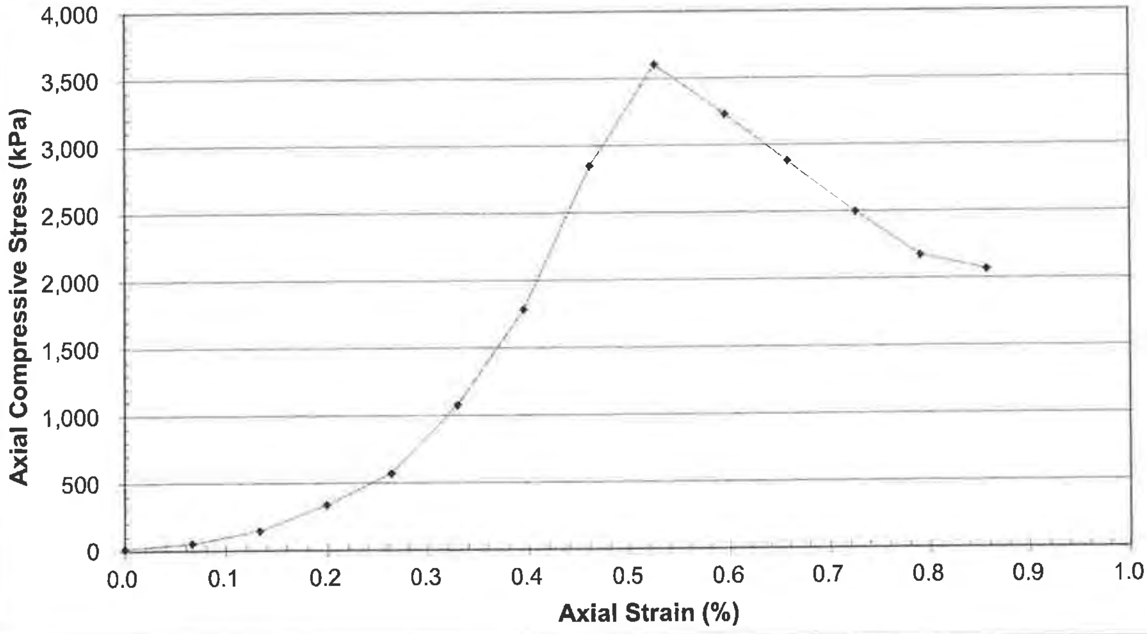
Compression Results

Maximum axial stress	3604	kPa
Axial strain at failure	0.53	%
Unconfined compressive strength, (q_u)	3604	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 10/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 17 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S14
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 17/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.1
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4680.8	12.82
0.10	0.1	-	0.24	240	4684.0	51.24
0.20	0.1	-	0.68	680	4687.1	145.08
0.30	0.2	-	1.58	1580	4690.2	336.88
0.40	0.3	-	2.67	2670	4693.2	568.91
0.50	0.3	-	5.05	5050	4696.3	1075.31
0.60	0.4	-	8.38	8380	4699.4	1783.20
0.70	0.5	-	13.40	13400	4702.5	2849.54
0.80	0.5	-	16.96	16960	4705.6	3604.22
0.91	0.6	-	15.22	15220	4708.9	3232.18
1.00	0.7	-	13.57	13570	4711.9	2879.97
1.10	0.7	-	11.78	11780	4715.1	2498.37
1.20	0.8	-	10.25	10250	4718.2	2172.45
1.30	0.9	-	9.76	9760	4721.3	2067.22

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S15
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 18/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1311.4
Length of specimen	mm	152.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	713.80	Bulk density	Mg/m^3	1.84
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

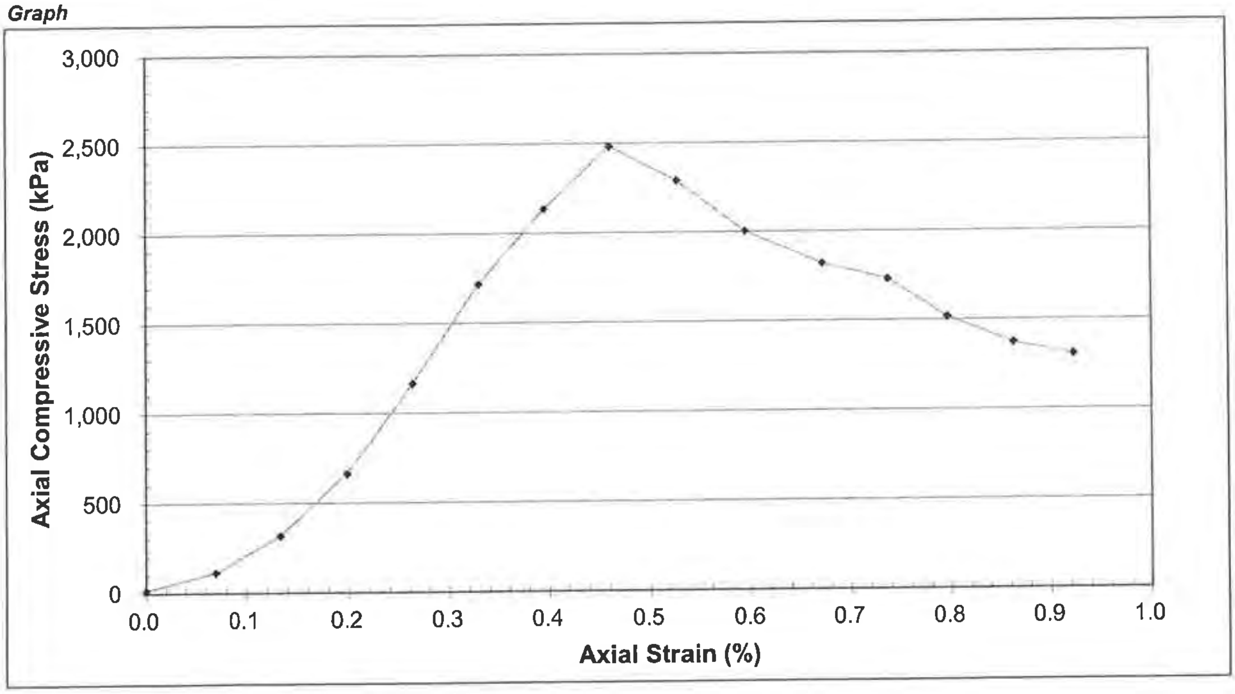
Visual Description: Reddish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2482	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.46	%		
Unconfined compressive strength, (q_u)	2482	kPa		

Graph



Remarks : Mixing Date : 11/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 18 October 2019

Certified by :
HUI King Fai

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S15
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 18/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.1
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4693.0	14.92
0.11	0.1	-	0.53	530	4696.3	112.86
0.20	0.1	-	1.49	1490	4699.2	317.07
0.30	0.2	-	3.12	3120	4702.3	663.51
0.40	0.3	-	5.48	5480	4705.4	1164.63
0.50	0.3	-	8.08	8080	4708.5	1716.05
0.60	0.4	-	10.05	10050	4711.6	2133.03
0.70	0.5	-	11.70	11700	4714.7	2481.59
0.80	0.5	-	10.80	10800	4717.9	2289.17
0.90	0.6	-	9.45	9450	4721.0	2001.68
1.02	0.7	-	8.60	8600	4724.7	1820.22
1.12	0.7	-	8.18	8180	4727.8	1730.18
1.21	0.8	-	7.17	7170	4730.7	1515.64
1.31	0.9	-	6.49	6490	4733.8	1370.99
1.40	0.9	-	6.18	6180	4736.7	1304.71

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Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S16
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 18/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

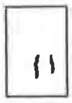
Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1248.6
Length of specimen	mm	152.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	706.43	Bulk density	Mg/m^3	1.77
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

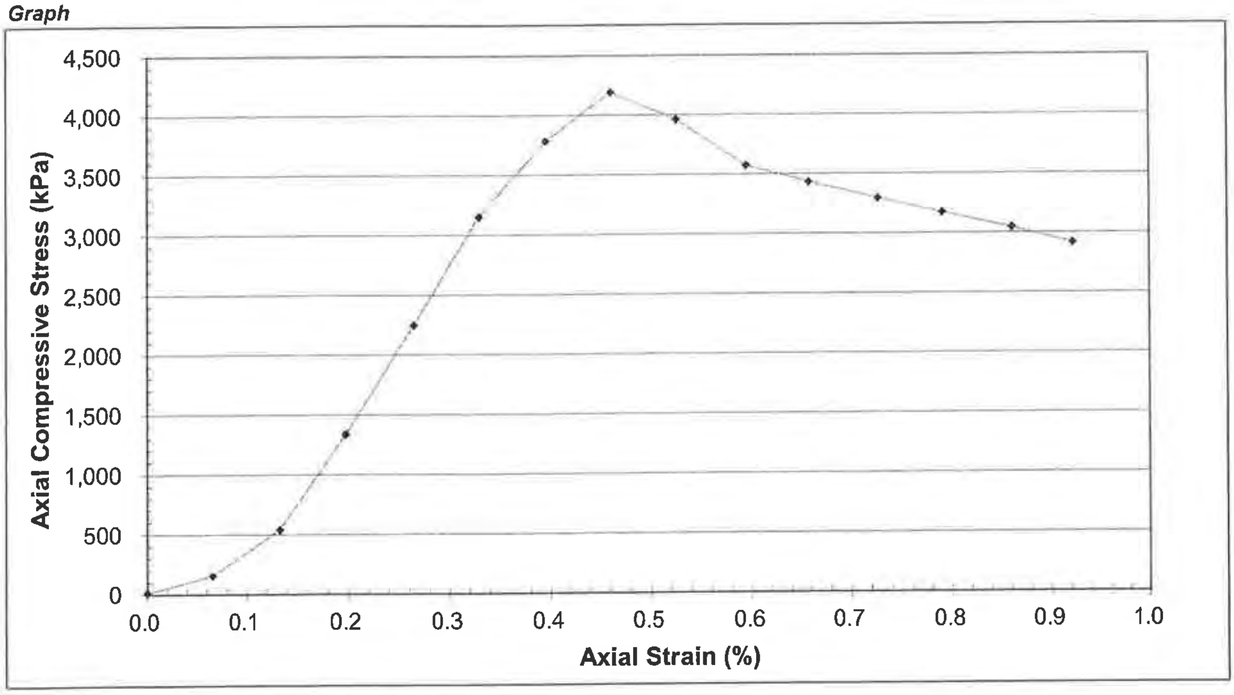
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen

Compression Results

Maximum axial stress	4192	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.46	%		
Unconfined compressive strength, (q_u)	4192	kPa		

Graph



Remarks : Mixing Date : 11/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 18 October 2019

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: LD03-S16
Sample Type[#]: PT75
Depth (m)[#]: -
Actual Depth (m): -
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 18/10/2019
W.O. No.[#]: -
Date Received: 15/10/2019

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.1
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4644.5	10.77
0.10	0.1	-	0.72	720	4647.6	154.92
0.20	0.1	-	2.51	2510	4650.7	539.70
0.30	0.2	-	6.22	6220	4653.7	1336.57
0.40	0.3	-	10.46	10460	4656.8	2246.16
0.50	0.3	-	14.69	14690	4659.9	3152.44
0.60	0.4	-	17.65	17650	4663.0	3785.12
0.70	0.5	-	19.56	19560	4666.0	$\boxed{4191.99}$
0.80	0.5	-	18.50	18500	4669.1	3962.22
0.91	0.6	-	16.70	16700	4672.3	3574.23
1.00	0.7	-	16.05	16050	4675.3	3432.91
1.11	0.7	-	15.41	15410	4678.6	3293.75
1.20	0.8	-	14.86	14860	4681.6	3174.15
1.31	0.9	-	14.26	14260	4684.9	3043.85
1.40	0.9	-	13.67	13670	4687.7	2916.11

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S17
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 18/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1291.0
Length of specimen	mm	151.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	708.71	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

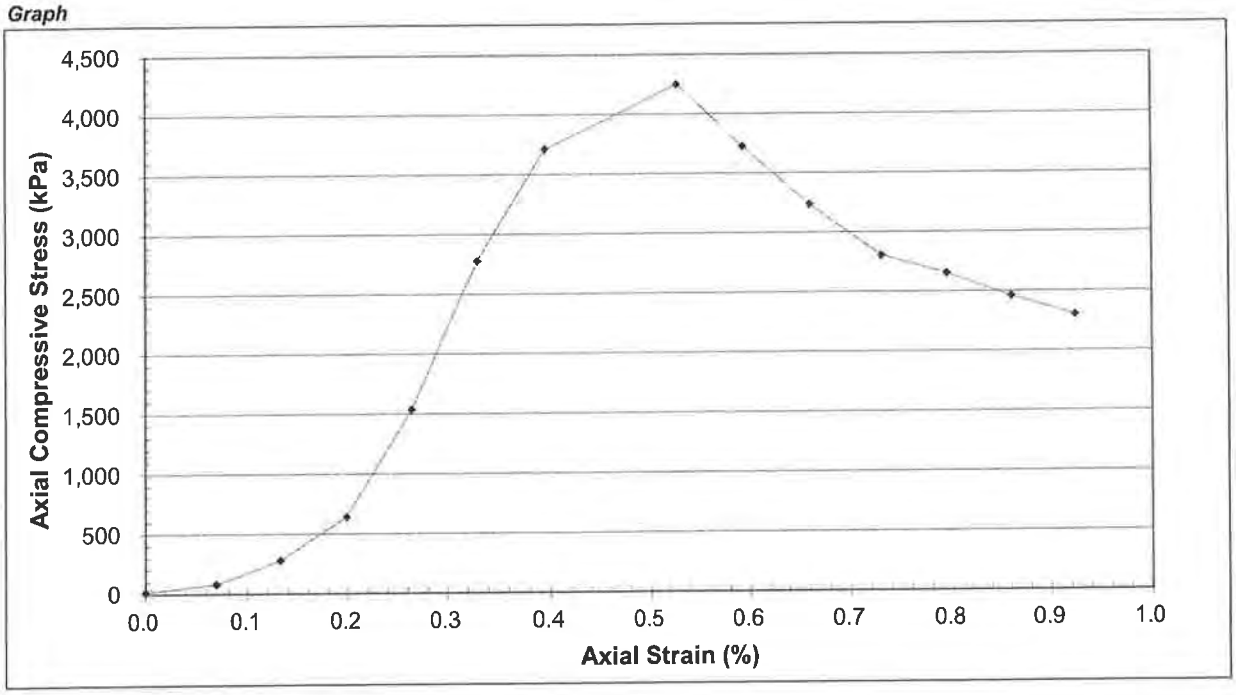
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4251	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.53	%	
Unconfined compressive strength, (q_u)	4251	kPa	

Graph



Remarks : Mixing Date : 11/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 18 October 2019

Date : 21 October 2019

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S17
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 18/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.8
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4668.7	14.99
0.11	0.1	-	0.38	380	4672.0	81.34
0.20	0.1	-	1.30	1300	4674.9	278.08
0.30	0.2	-	3.00	3000	4678.0	641.30
0.40	0.3	-	7.19	7190	4681.1	1535.97
0.50	0.3	-	13.00	13000	4684.2	2775.29
0.60	0.4	-	17.40	17400	4687.3	3712.19
0.80	0.5	-	19.95	19950	4693.5	$\boxed{4250.56}$
0.90	0.6	-	17.50	17500	4696.6	3726.10
1.00	0.7	-	15.21	15210	4699.8	3236.34
1.11	0.7	-	13.19	13190	4703.1	2804.54
1.21	0.8	-	12.48	12480	4706.1	2651.85
1.31	0.9	-	11.58	11580	4709.2	2458.99
1.40	0.9	-	10.85	10850	4712.3	2302.49

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S18
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 19/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1297.5
Length of specimen	mm	153.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	710.61	Bulk density	Mg/m^3	1.83
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

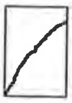
Visual Description: Reddish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

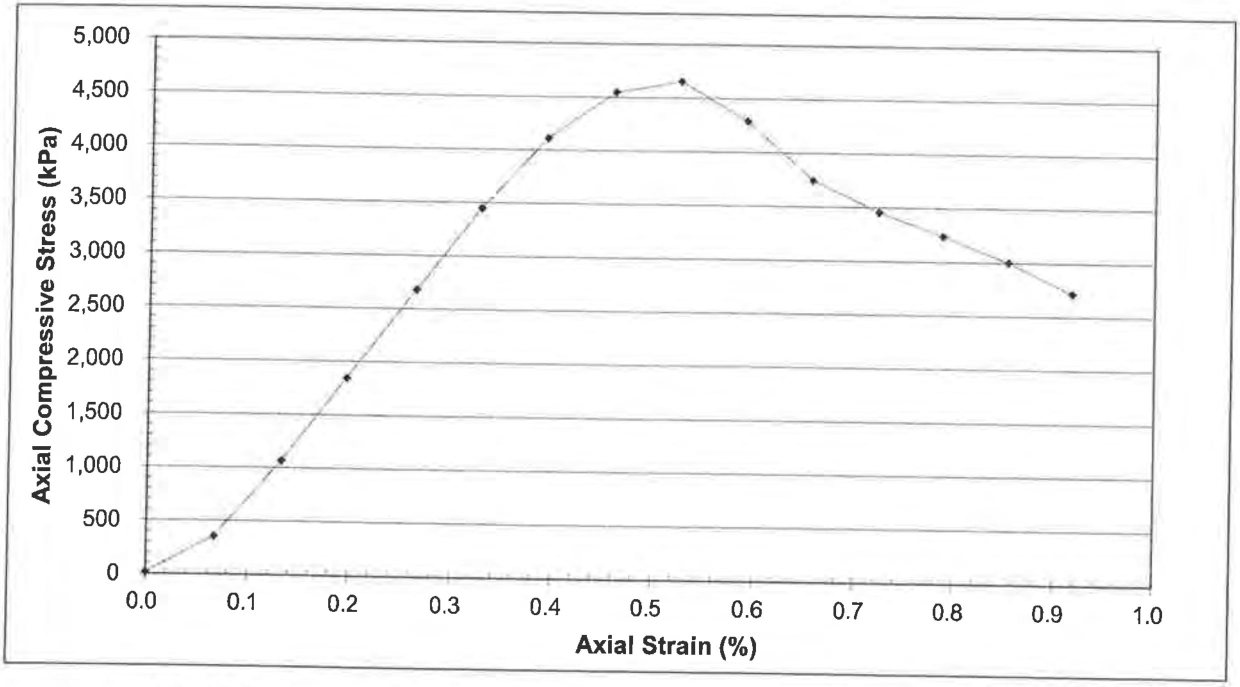
Compression Results

Maximum axial stress	4654	kPa
Axial strain at failure	0.52	%
Unconfined compressive strength, (q_u)	4654	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 12/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 19 October 2019

Certified by :
HUI King Fai

Date : 21 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190172
Job No.: SHK190028
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S18
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 19/10/2019
W.O. No.#: -
Date Received: 15/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.0
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4644.5	12.92
0.10	0.1	-	1.64	1640	4647.6	352.87
0.20	0.1	-	4.96	4960	4650.7	1066.50
0.30	0.2	-	8.58	8580	4653.7	1843.71
0.40	0.3	-	12.48	12480	4656.8	2679.95
0.50	0.3	-	16.07	16070	4659.8	3448.65
0.60	0.4	-	19.17	19170	4662.8	4111.24
0.70	0.5	-	21.22	21220	4666.0	4547.81
0.80	0.5	-	21.73	21730	4669.0	$\boxed{4654.06}$
0.90	0.6	-	20.06	20060	4672.1	4293.56
1.00	0.7	-	17.52	17520	4675.2	3747.44
1.10	0.7	-	16.17	16170	4678.3	3456.39
1.20	0.8	-	15.17	15170	4681.4	3240.50
1.31	0.9	-	14.07	14070	4684.5	3003.53
1.40	0.9	-	12.73	12730	4687.5	2715.72

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190173
Job No.: SHK190029
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S19
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 21/10/2019
W.O. No.#: -
Date Received: 16/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1289.1
Length of specimen	mm	152.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	710.11	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

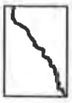
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen

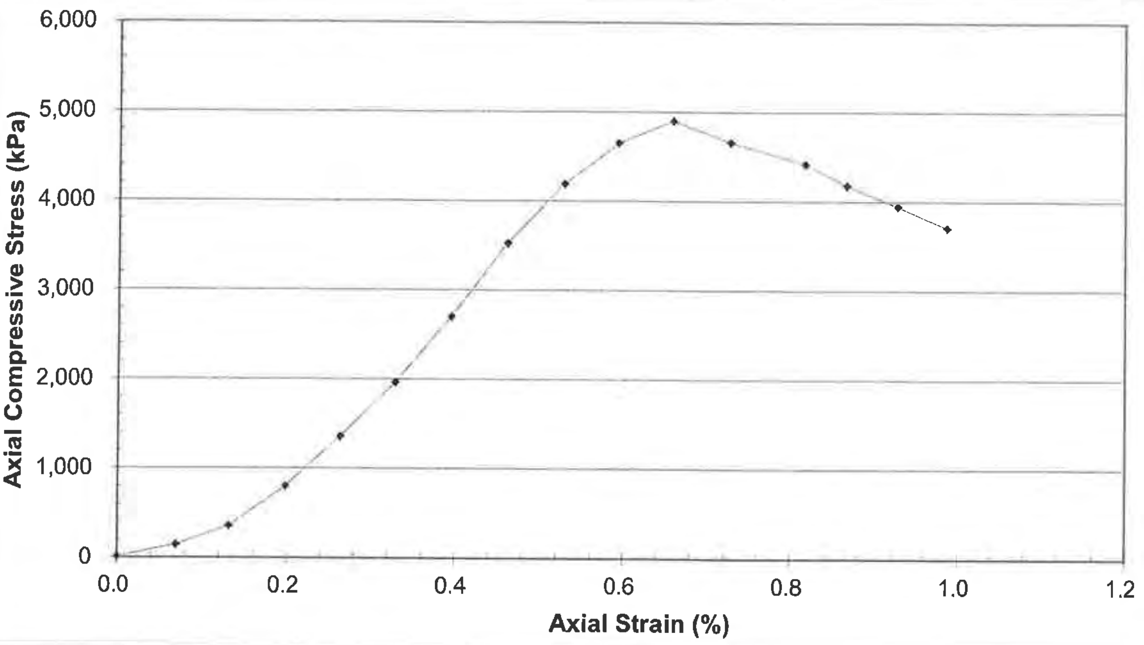
Compression Results

Maximum axial stress	4898	kPa
Axial strain at failure	0.66	%
Unconfined compressive strength, (q_u)	4898	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 14/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 21 October 2019

Date : 22 October 2019

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190173
Job No.: SHK190029
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S19
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 21/10/2019
W.O. No.#: -
Date Received: 16/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.1
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4668.7	10.71
0.11	0.1	-	0.67	670	4672.0	143.41
0.20	0.1	-	1.66	1660	4674.9	355.09
0.30	0.2	-	3.74	3740	4678.0	799.49
0.40	0.3	-	6.36	6360	4681.0	1358.67
0.50	0.3	-	9.19	9190	4684.2	1961.93
0.60	0.4	-	12.66	12660	4687.2	2700.94
0.70	0.5	-	16.53	16530	4690.4	3524.24
0.80	0.5	-	19.67	19670	4693.5	4190.87
0.90	0.6	-	21.84	21840	4696.6	4650.19
1.00	0.7	-	23.02	23020	4699.7	4898.20
1.11	0.7	-	21.91	21910	4702.9	4658.80
1.24	0.8	-	20.80	20800	4707.2	4418.79
1.32	0.9	-	19.69	19690	4709.5	4180.90
1.41	0.9	-	18.58	18580	4712.4	3942.75
1.50	1.0	-	17.47	17470	4715.3	3704.99

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190173
Job No.: SHK190029
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S20
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 21/10/2019
W.O. No.#: -
Date Received: 16/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1302.7
Length of specimen	mm	150.5	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	704.47	Bulk density	Mg/m^3	1.85
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

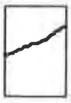
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

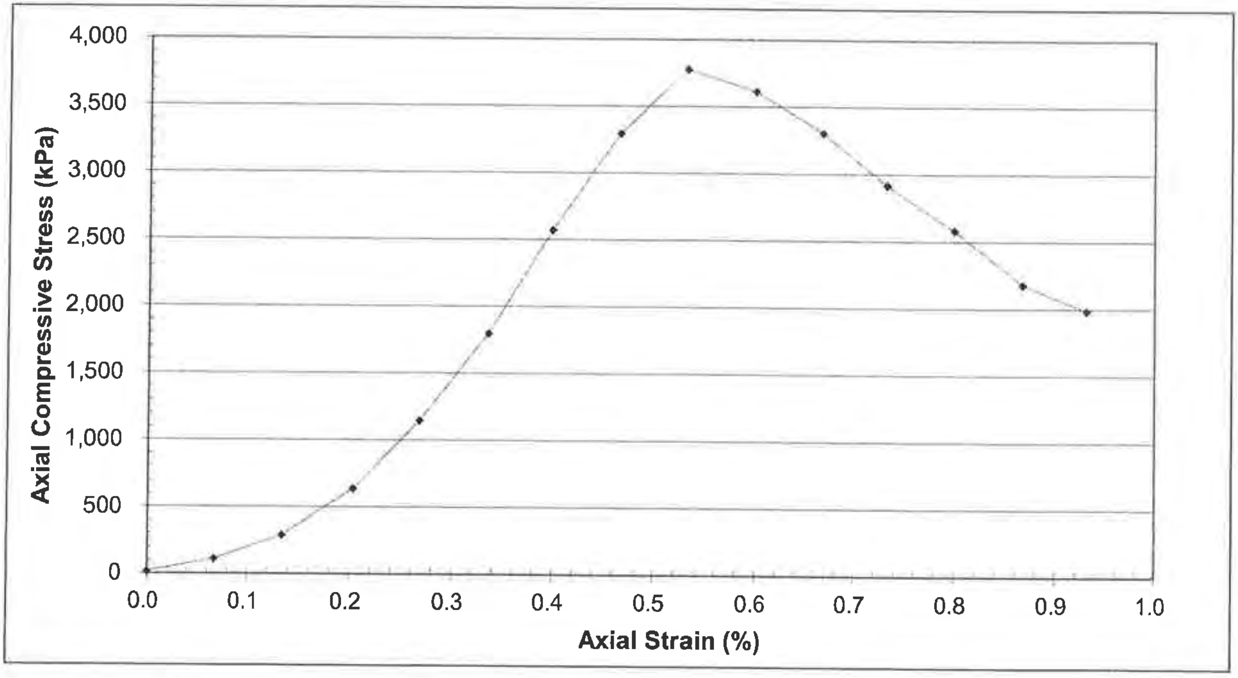
Compression Results

Maximum axial stress	3778	kPa
Axial strain at failure	0.53	%
Unconfined compressive strength, (q_u)	3778	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 14/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 21 October 2019

Certified by :
HUI King Fai

Date : 22 October 2019

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190173
Job No.: SHK190029
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S20
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 21/10/2019
W.O. No.#: -
Date Received: 16/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.5
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4680.8	14.95
0.10	0.1	-	0.51	510	4684.0	108.88
0.20	0.1	-	1.34	1340	4687.1	285.89
0.31	0.2	-	2.98	2980	4690.4	635.34
0.40	0.3	-	5.37	5370	4693.4	1144.16
0.51	0.3	-	8.43	8430	4696.6	1794.91
0.60	0.4	-	12.08	12080	4699.6	2570.42
0.70	0.5	-	15.49	15490	4702.8	3293.79
0.80	0.5	-	17.78	17780	4705.9	$\boxed{3778.24}$
0.90	0.6	-	17.02	17020	4709.1	3614.28
1.01	0.7	-	15.57	15570	4712.3	3304.11
1.10	0.7	-	13.75	13750	4715.4	2915.99
1.20	0.8	-	12.19	12190	4718.6	2583.41
1.31	0.9	-	10.29	10290	4721.8	2179.26
1.40	0.9	-	9.38	9380	4724.8	1985.26

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#:	-	Depth (m)#:	-	Date of Test:	22/10/2019
Sample No.#:	LD03-S21	Actual Depth (m):	-	W.O. No.#:	-
Sample Type#:	PT75	Sample Origin#:	Contaminated soil mixed with 10% cement and 10% sand	Date Received:	18/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1301.7
Length of specimen	mm	152.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	712.89	Bulk density	Mg/m^3	1.83
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

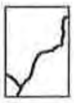
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

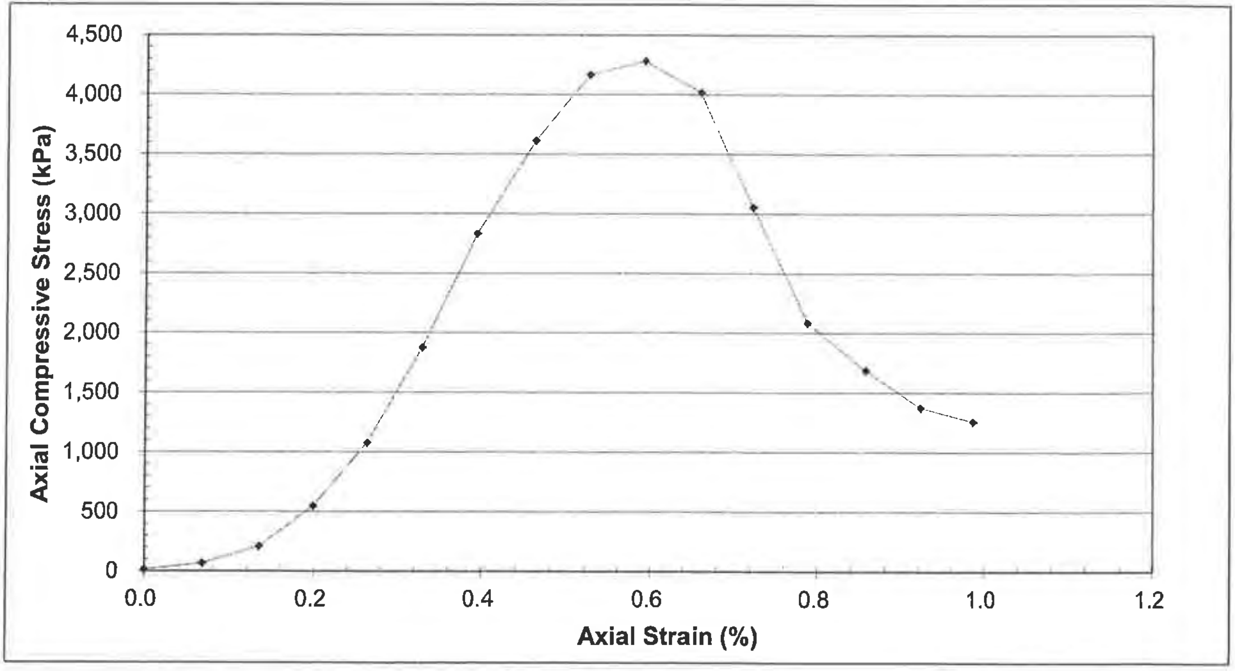
Compression Results

Maximum axial stress	4284	kPa
Axial strain at failure	0.59	%
Unconfined compressive strength, (q_u)	4284	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 15/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 22 October 2019

Date : 24 October 2019

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S21
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 22/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.3
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4680.8	12.82
0.10	0.1	-	0.31	310	4684.0	66.18
0.21	0.1	-	0.98	980	4687.2	209.08
0.30	0.2	-	2.56	2560	4690.2	545.82
0.40	0.3	-	5.07	5070	4693.2	1080.29
0.50	0.3	-	8.82	8820	4696.3	1878.08
0.60	0.4	-	13.32	13320	4699.4	2834.41
0.70	0.5	-	17.00	17000	4702.6	3615.03
0.80	0.5	-	19.62	19620	4705.6	4169.50
0.90	0.6	-	20.17	20170	4708.8	$\boxed{4283.50}$
1.00	0.7	-	18.94	18940	4711.9	4019.60
1.10	0.7	-	14.39	14390	4714.9	3052.03
1.20	0.8	-	9.84	9840	4718.0	2085.62
1.31	0.9	-	7.97	7970	4721.3	1688.09
1.41	0.9	-	6.50	6500	4724.5	1375.82
1.50	1.0	-	5.95	5950	4727.5	1258.59

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S22
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 22/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Specimen Details

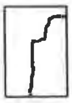
Diameter of specimen	mm	77.5	Wet mass of specimen	g	1280.2
Length of specimen	mm	151.6	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	715.14	Bulk density	Mg/m^3	1.79
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

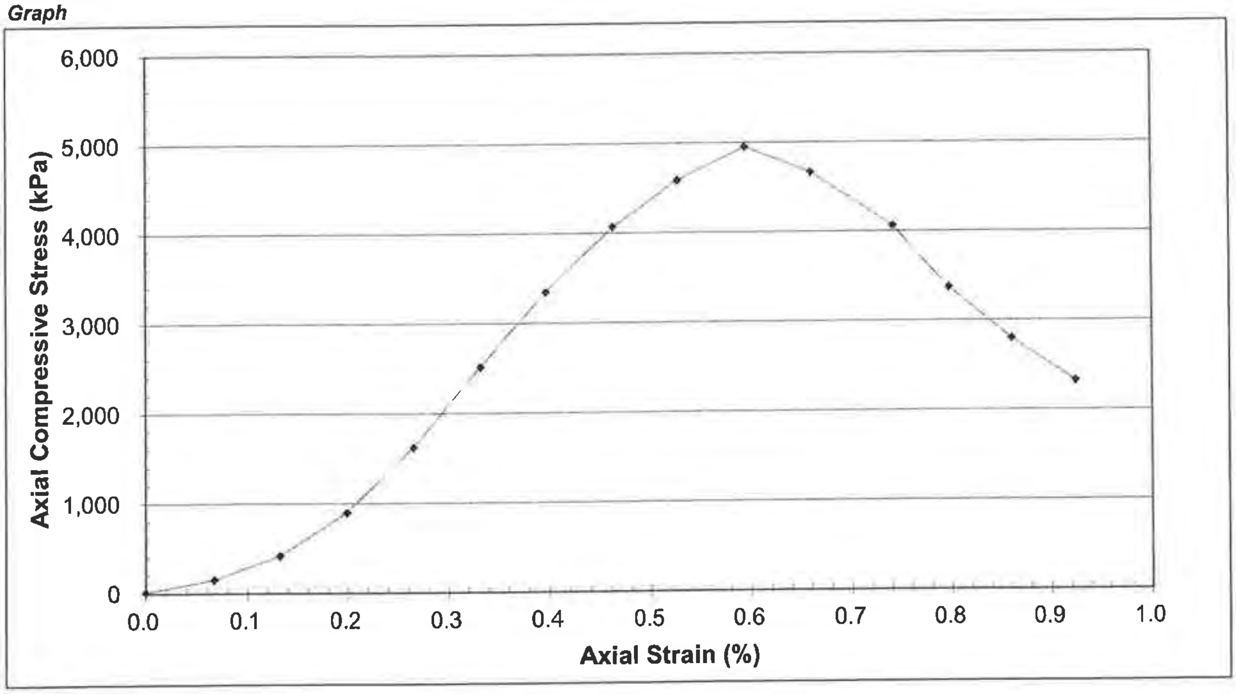
Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4952	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.59	%	
Unconfined compressive strength, (q_u)	4952	kPa	



Graph



Remarks : Mixing Date : 15/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 22 October 2019

Certified by :
HUI King Fai

Date : 24 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S22
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 22/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.6
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4717.3	12.72
0.10	0.1	-	0.73	730	4720.4	154.65
0.20	0.1	-	1.97	1970	4723.5	417.06
0.30	0.2	-	4.24	4240	4726.7	897.04
0.40	0.3	-	7.68	7680	4729.8	1623.73
0.50	0.3	-	11.89	11890	4733.0	2512.15
0.60	0.4	-	15.85	15850	4736.1	3346.65
0.70	0.5	-	19.28	19280	4739.2	4068.19
0.80	0.5	-	21.74	21740	4742.3	4584.25
0.90	0.6	-	23.50	23500	4745.5	$\boxed{4952.03}$
1.00	0.7	-	22.15	22150	4748.7	4664.48
1.12	0.7	-	19.31	19310	4752.5	4063.10
1.21	0.8	-	16.02	16020	4755.2	3368.93
1.30	0.9	-	13.32	13320	4758.2	2799.36
1.40	0.9	-	11.08	11080	4761.3	2327.10

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S23
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 22/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

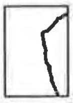
Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1303.5
Length of specimen	mm	152.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	716.62	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

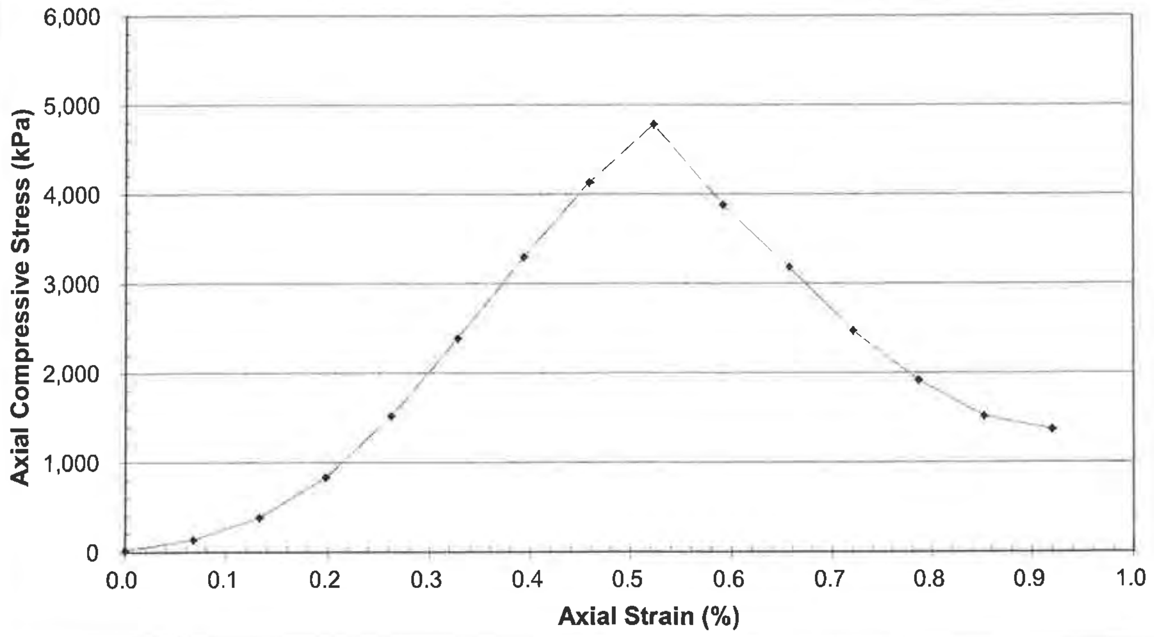
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4780	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.52	%	
Unconfined compressive strength, (q_u)	4780	kPa	

Graph



Remarks : Mixing Date : 15/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 22 October 2019

Date : 24 October 2019

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S23
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 22/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.7
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4693.0	19.18
0.10	0.1	-	0.65	650	4696.1	138.41
0.20	0.1	-	1.80	1800	4699.2	383.04
0.30	0.2	-	3.92	3920	4702.3	833.64
0.40	0.3	-	7.16	7160	4705.3	1521.68
0.50	0.3	-	11.25	11250	4708.4	2389.33
0.60	0.4	-	15.53	15530	4711.5	3296.19
0.70	0.5	-	19.47	19470	4714.6	4129.70
0.80	0.5	-	22.55	22550	4717.7	$\boxed{4779.87}$
0.90	0.6	-	18.32	18320	4720.9	3880.62
1.00	0.7	-	15.04	15040	4724.0	3183.76
1.10	0.7	-	11.67	11670	4727.0	2468.78
1.20	0.8	-	9.07	9070	4730.2	1917.47
1.30	0.9	-	7.18	7180	4733.3	1516.90
1.41	0.9	-	6.49	6490	4736.6	1370.19

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S24
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 23/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1290.3
Length of specimen	mm	152.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	711.05	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

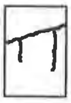
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen

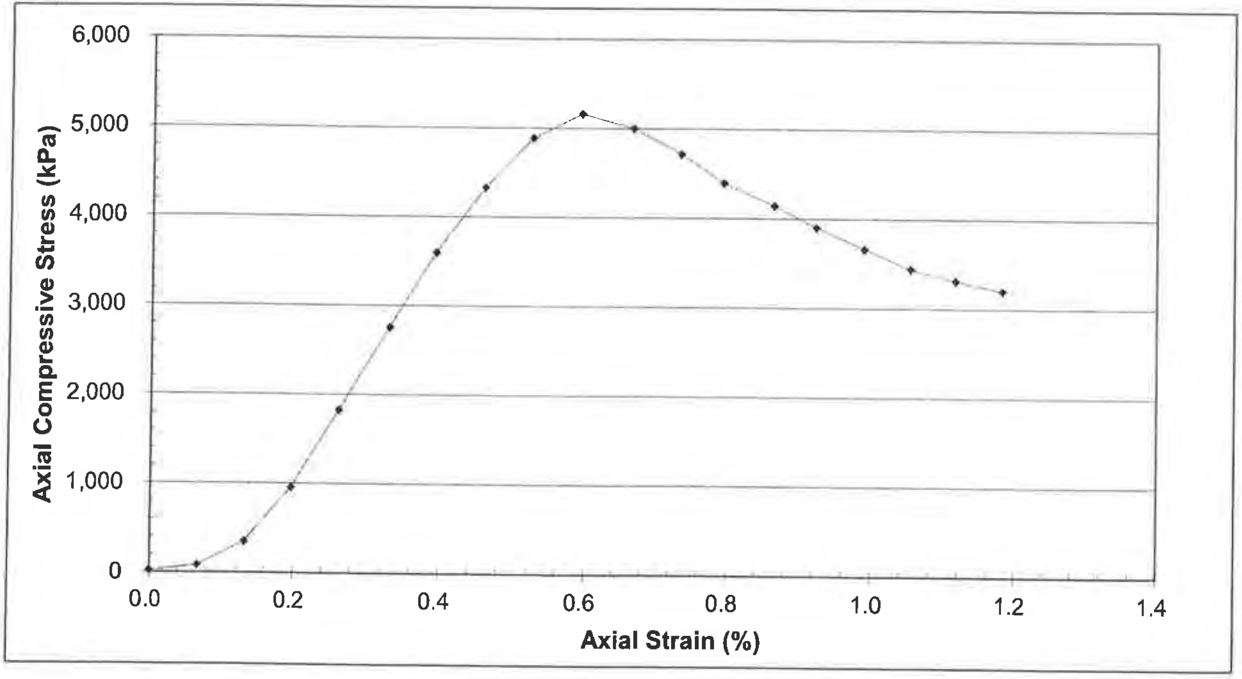
Compression Results

Maximum axial stress	5161	kPa
Axial strain at failure	0.59	%
Unconfined compressive strength, (q_u)	5161	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 16/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 23 October 2019

Certified by :
HUI King Fai

Date : 24 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S24
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 23/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.3
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4668.7	17.14
0.10	0.1	-	0.39	390	4671.8	83.48
0.20	0.1	-	1.63	1630	4674.9	348.67
0.30	0.2	-	4.47	4470	4677.9	955.55
0.40	0.3	-	8.54	8540	4681.0	1824.39
0.50	0.3	-	12.90	12900	4684.2	2753.92
0.60	0.4	-	16.85	16850	4687.2	3594.90
0.70	0.5	-	20.29	20290	4690.3	4325.91
0.80	0.5	-	22.93	22930	4693.4	4885.57
0.91	0.6	-	24.24	24240	4696.6	5161.14
1.02	0.7	-	23.50	23500	4700.1	4999.91
1.12	0.7	-	22.18	22180	4703.3	4715.85
1.21	0.8	-	20.68	20680	4706.1	4394.31
1.32	0.9	-	19.52	19520	4709.4	4144.88
1.41	0.9	-	18.39	18390	4712.2	3902.64
1.51	1.0	-	17.27	17270	4715.4	3662.48
1.61	1.1	-	16.24	16240	4718.5	3441.81
1.70	1.1	-	15.65	15650	4721.4	3314.67
1.80	1.2	-	15.12	15120	4724.6	3200.27

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S25
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 23/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1294.3
Length of specimen	mm	153.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	715.25	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

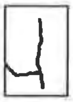
* Delete whichever is inappropriate

Visual Description: Brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

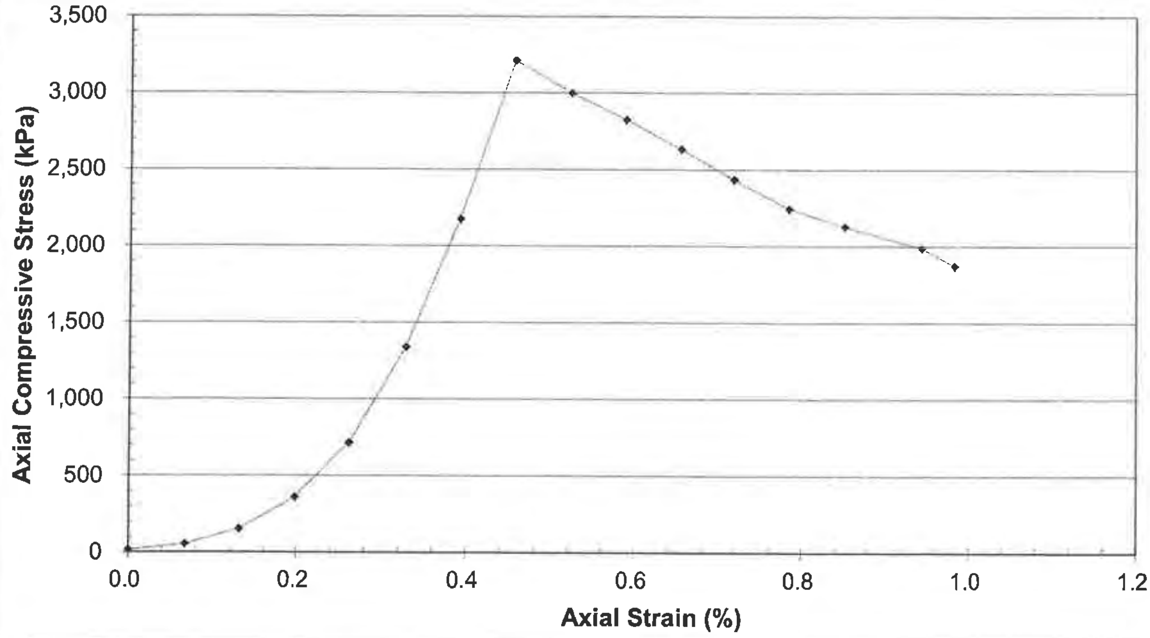
Compression Results

Maximum axial stress	3211	kPa
Axial strain at failure	0.46	%
Unconfined compressive strength, (q_u)	3211	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 16/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 23 October 2019

Date : 24 October 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S25
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 23/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.2
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4668.7	14.99
0.10	0.1	-	0.25	250	4671.8	53.51
0.20	0.1	-	0.71	710	4674.9	151.88
0.30	0.2	-	1.68	1680	4678.0	359.13
0.40	0.3	-	3.35	3350	4681.0	715.66
0.50	0.3	-	6.27	6270	4684.1	1338.57
0.60	0.4	-	10.20	10200	4687.1	2176.18
0.70	0.5	-	15.06	15060	4690.2	$\boxed{3210.96}$
0.80	0.5	-	14.07	14070	4693.3	2997.89
0.90	0.6	-	13.27	13270	4696.4	2825.58
1.00	0.7	-	12.37	12370	4699.5	2632.18
1.10	0.7	-	11.45	11450	4702.5	2434.88
1.20	0.8	-	10.56	10560	4705.6	2244.13
1.30	0.9	-	10.02	10020	4708.8	2127.93
1.45	0.9	-	9.37	9370	4713.2	1988.04
1.51	1.0	-	8.83	8830	4715.1	1872.72

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S26
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 23/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1290.3
Length of specimen	mm	153.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	718.50	Bulk density	Mg/m^3	1.80
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

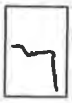
Visual Description: Brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

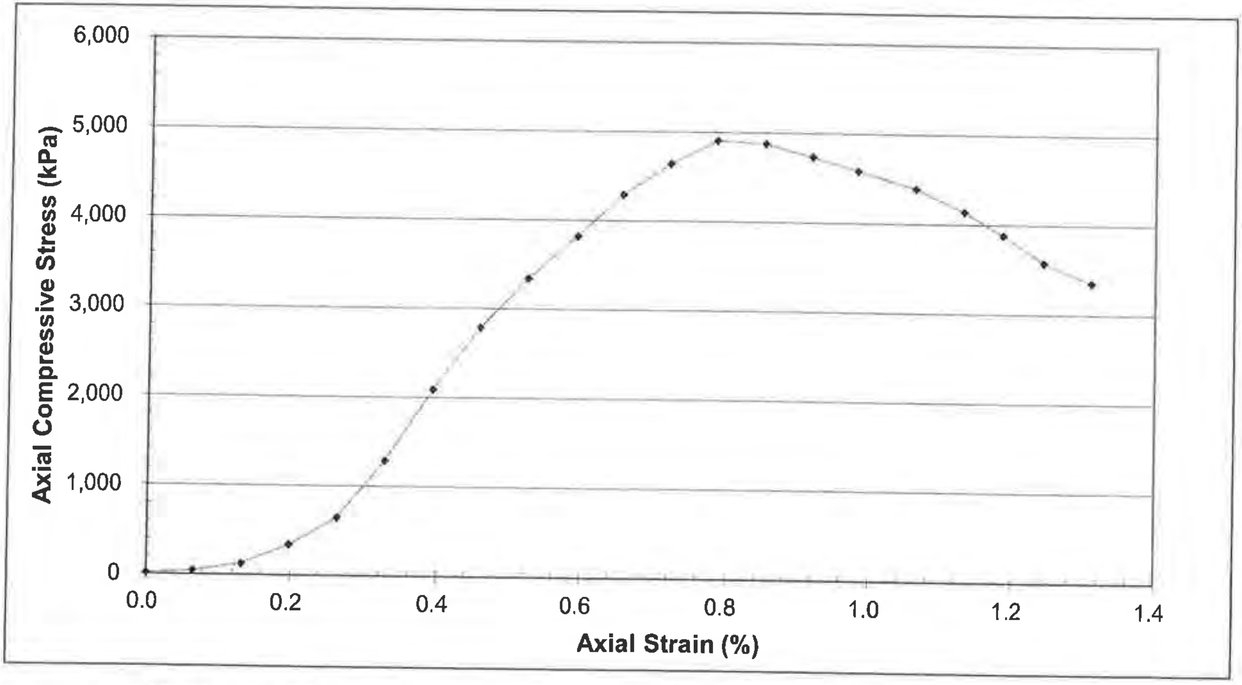
Compression Results

Maximum axial stress	4905	kPa
Axial strain at failure	0.78	%
Unconfined compressive strength, (q_u)	4905	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 16/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 23 October 2019

Certified by :
HUI King Fai

Date : 24 October 2019

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190174
Job No.: SHK190030
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD03-S26
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 23/10/2019
W.O. No.#: -
Date Received: 18/10/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.1
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.06*	60	4693.0	12.79
0.10	0.1	-	*0.20*	200	4696.0	42.59
0.20	0.1	-	*0.58*	580	4699.2	123.42
0.30	0.2	-	*1.59*	1590	4702.3	338.13
0.40	0.3	-	*3.05*	3050	4705.3	648.20
0.50	0.3	-	*6.07*	6070	4708.4	1289.19
0.60	0.4	-	*9.85*	9850	4711.5	2090.64
0.70	0.5	-	*13.14*	13140	4714.6	2787.11
0.80	0.5	-	*15.76*	15760	4717.7	3340.61
0.91	0.6	-	*18.04*	18040	4720.9	3821.26
1.00	0.7	-	*20.27*	20270	4723.9	4290.92
1.10	0.7	-	*21.94*	21940	4727.0	4641.42
1.20	0.8	-	*23.20*	23200	4730.1	$\boxed{4904.80}$
1.30	0.9	-	*23.08*	23080	4733.3	4876.13
1.40	0.9	-	*22.42*	22420	4736.4	4733.54
1.50	1.0	-	*21.72*	21720	4739.4	4582.81
1.63	1.1	-	*20.84*	20840	4743.4	4393.51
1.73	1.1	-	*19.65*	19650	4746.6	4139.79
1.81	1.2	-	*18.44*	18440	4749.3	3882.72
1.90	1.2	-	*17.01*	17010	4752.0	3579.53

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S27
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

Specimen Details

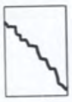
Diameter of specimen	mm	76.8	Wet mass of specimen	g	1368.4
Length of specimen	mm	153.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4632.5	Moisture content	%	-
Volume of specimen	cm^3	709.23	Bulk density	Mg/m^3	1.93
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

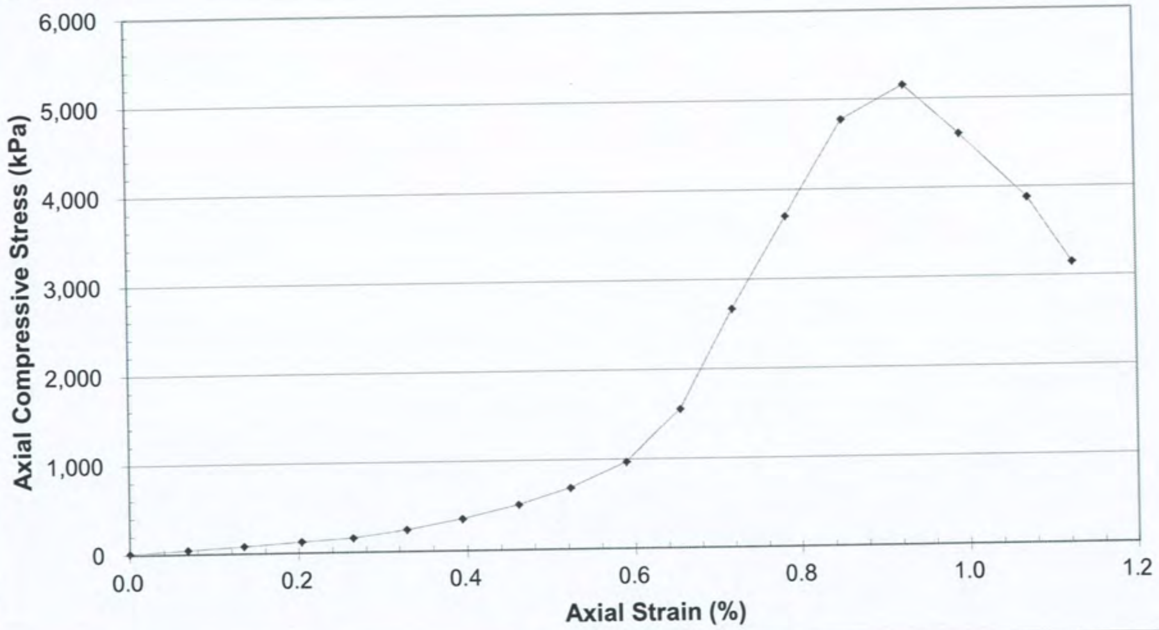
Visual Description: Light greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	5156	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.93	%	
Unconfined compressive strength, (q_u)	5156	kPa	

Graph



Remarks : Mixing Date : 17/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 2 December 2019

Certified by : HUI King Fai

Date : 4 December 2019

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Actual Depth (m): -
Date of Test: 2/12/2019
Sample No.#: S3-SC074A
02-12-2019
LD003-S27
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.1
		Original area (A_o)	mm^2	4632.5

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.06*	60	4632.5	12.95
0.10	0.1	-	*0.21*	210	4635.6	45.30
0.21	0.1	-	*0.38*	380	4638.7	81.92
0.31	0.2	-	*0.58*	580	4641.9	124.95
0.41	0.3	-	*0.74*	740	4644.8	159.32
0.50	0.3	-	*1.13*	1130	4647.7	243.13
0.60	0.4	-	*1.66*	1660	4650.8	356.93
0.71	0.5	-	*2.35*	2350	4653.9	504.95
0.80	0.5	-	*3.19*	3190	4656.8	685.02
0.90	0.6	-	*4.52*	4520	4660.0	969.97
1.00	0.7	-	*7.25*	7250	4663.0	1554.80
1.10	0.7	-	*12.46*	12460	4666.0	2670.39
1.20	0.8	-	*17.27*	17270	4669.1	3698.81
1.31	0.9	-	*22.32*	22320	4672.3	4777.10
1.42	0.9	-	*24.11*	24110	4675.8	$\boxed{5156.37}$
1.52	1.0	-	*21.53*	21530	4678.9	4601.52
1.64	1.1	-	*18.17*	18170	4682.7	3880.27
1.72	1.1	-	*14.75*	14750	4685.1	3148.26

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S28
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1360.8
Length of specimen	mm	151.4	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	710.52	Bulk density	Mg/m^3	1.92
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

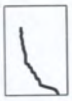
Visual Description: Light greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

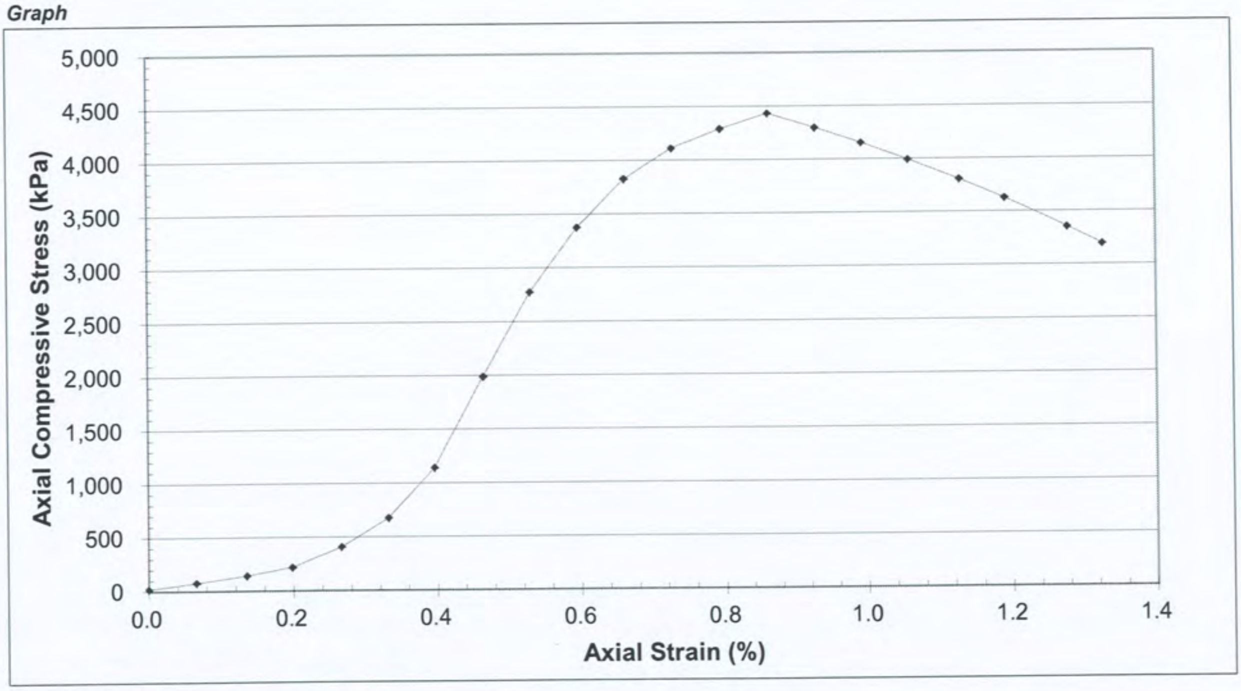
Compression Results

Maximum axial stress	4432	kPa
Axial strain at failure	0.86	%
Unconfined compressive strength, (q_u)	4432	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 17/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 2 December 2019

Certified by :
HUI King Fai

Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019
LD003-S28
Depth (m)#: -
Actual Depth (m): -
Date of Test: 2/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.4
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4693.0	19.18
0.10	0.1	-	0.36	360	4696.1	76.66
0.21	0.1	-	0.67	670	4699.3	142.57
0.30	0.2	-	1.03	1030	4702.3	219.04
0.40	0.3	-	1.92	1920	4705.5	408.03
0.50	0.3	-	3.18	3180	4708.6	675.36
0.60	0.4	-	5.38	5380	4711.7	1141.85
0.70	0.5	-	9.37	9370	4714.9	1987.33
0.80	0.5	-	13.08	13080	4718.0	2772.38
0.90	0.6	-	15.94	15940	4721.1	3376.30
1.00	0.7	-	18.07	18070	4724.2	3824.97
1.10	0.7	-	19.43	19430	4727.4	4110.09
1.20	0.8	-	20.28	20280	4730.6	4287.01
1.30	0.9	-	20.98	20980	4733.8	$\boxed{4432.00}$
1.41	0.9	-	20.35	20350	4736.9	4296.02
1.50	1.0	-	19.68	19680	4740.0	4151.87
1.60	1.1	-	18.94	18940	4743.1	3993.14
1.71	1.1	-	18.06	18060	4746.5	3804.89
1.80	1.2	-	17.22	17220	4749.5	3625.61
1.93	1.3	-	15.95	15950	4753.7	3355.28
2.01	1.3	-	15.19	15190	4756.1	3193.82

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S29
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1377.3
Length of specimen	mm	151.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	708.21	Bulk density	Mg/m^3	1.94
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

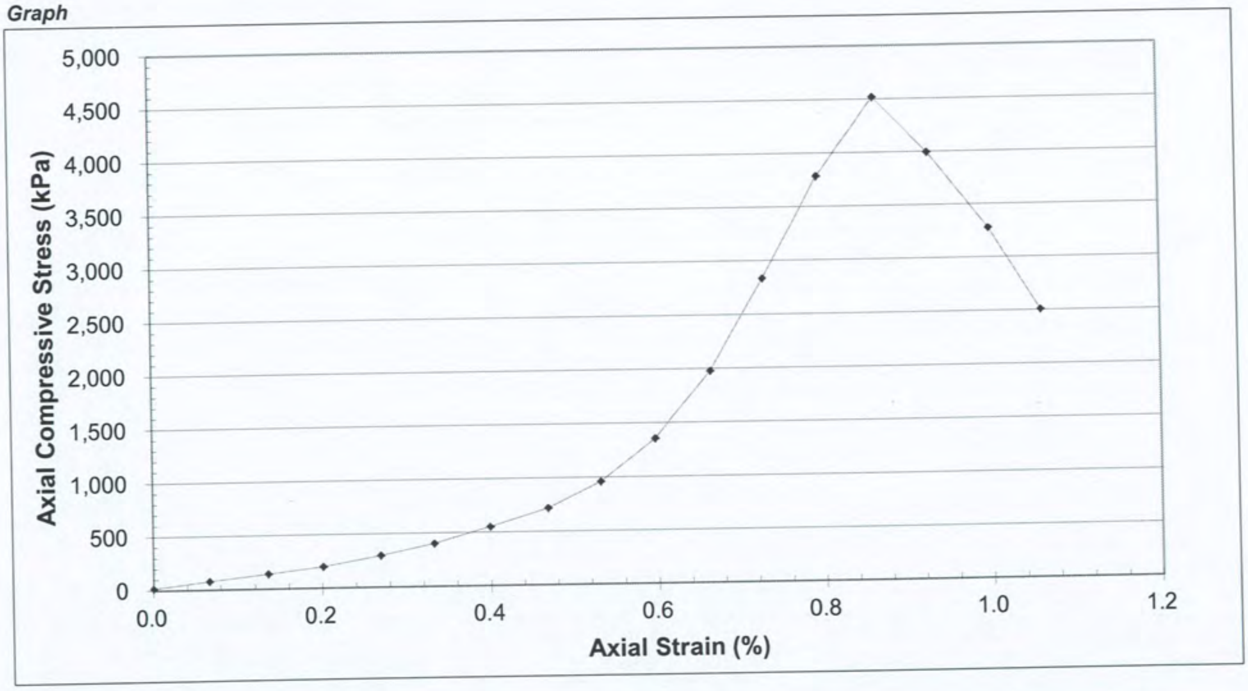
* Delete whichever is inappropriate

Visual Description: Light greyish brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4518	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.86	%	
Unconfined compressive strength, (q_u)	4518	kPa	

Graph



Remarks : Mixing Date : 18/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 2 December 2019

Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 2/12/2019
Sample No.#: S3-SC074A
02-12-2019
LD003-S29
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.3
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4680.8	17.09
0.10	0.1	-	0.37	370	4683.9	78.99
0.21	0.1	-	0.65	650	4687.2	138.68
0.30	0.2	-	0.94	940	4690.3	200.41
0.41	0.3	-	1.39	1390	4693.5	296.15
0.50	0.3	-	1.88	1880	4696.5	400.30
0.60	0.4	-	2.59	2590	4699.6	551.11
0.71	0.5	-	3.37	3370	4702.9	716.58
0.80	0.5	-	4.51	4510	4705.9	958.38
0.90	0.6	-	6.38	6380	4709.0	1354.87
1.00	0.7	-	9.32	9320	4712.1	1977.88
1.10	0.7	-	13.36	13360	4715.1	2833.43
1.20	0.8	-	17.85	17850	4718.3	3783.14
1.30	0.9	-	21.33	21330	4721.5	4517.59
1.40	0.9	-	18.87	18870	4724.6	3993.97
1.51	1.0	-	15.50	15500	4728.0	3278.32
1.60	1.1	-	11.85	11850	4730.9	2504.79

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S30
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1364.9
Length of specimen	mm	151.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	705.04	Bulk density	Mg/m^3	1.94
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

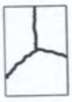
* Delete whichever is inappropriate

Visual Description: Light greyish brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

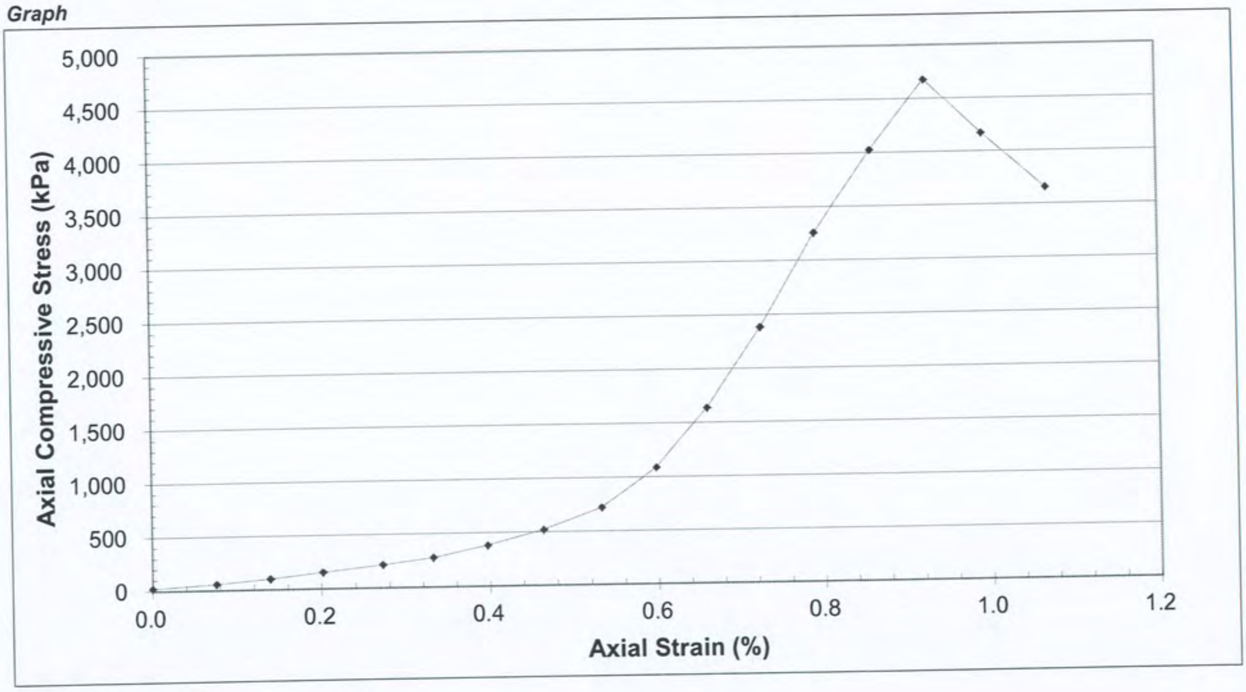
Compression Results

Maximum axial stress	4676	kPa
Axial strain at failure	0.92	%
Unconfined compressive strength, (q_u)	4676	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 18/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 2 December 2019

Certified by :
HUI King Fai

Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019
LD003-S30

Depth (m)#: -
Actual Depth (m): -

Date of Test: 2/12/2019
W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date Received: 2/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.8
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.10	100	4644.5	21.53
0.12	0.1	-	0.27	270	4648.1	58.09
0.21	0.1	-	0.46	460	4651.0	98.90
0.31	0.2	-	0.72	720	4653.9	154.71
0.41	0.3	-	1.00	1000	4657.2	214.72
0.50	0.3	-	1.28	1280	4660.0	274.68
0.60	0.4	-	1.78	1780	4663.1	381.72
0.70	0.5	-	2.43	2430	4666.2	520.77
0.81	0.5	-	3.36	3360	4669.4	719.58
0.91	0.6	-	5.08	5080	4672.5	1087.22
1.00	0.7	-	7.66	7660	4675.4	1638.37
1.10	0.7	-	11.15	11150	4678.4	2383.27
1.20	0.8	-	15.25	15250	4681.5	3257.47
1.30	0.9	-	18.85	18850	4684.8	4023.67
1.40	0.9	-	21.92	21920	4687.9	$\boxed{4675.87}$
1.51	1.0	-	19.56	19560	4691.1	4169.62
1.62	1.1	-	17.16	17160	4694.7	3655.21

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S31
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.7	Wet mass of specimen	g	1367.3
Length of specimen	mm	153.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4620.4	Moisture content	%	-
Volume of specimen	cm^3	706.92	Bulk density	Mg/m^3	1.93
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

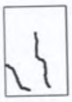
Visual Description: Light greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

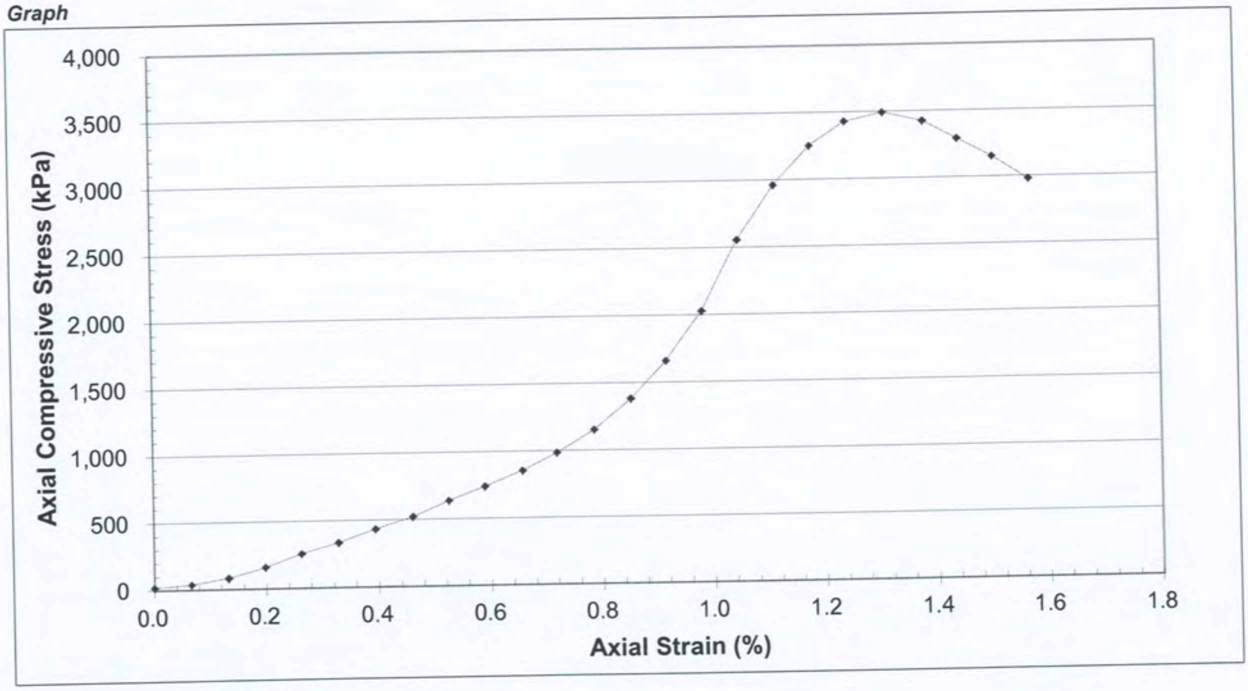
Compression Results

Maximum axial stress	3492	kPa
Axial strain at failure	1.3	%
Unconfined compressive strength, (q_u)	3492	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 19/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 2 December 2019

Certified by :
HUI King Fai

Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 02-12-2019 LD003-S31
Depth (m)#: -
Actual Depth (m): -
Date of Test: 2/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.0
		Original area (A_o)	mm^2	4620.4

The compression was terminated at 1.6% of axial strain and the peak axial compressive stress is reached at 1.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4620.4	17.31
0.10	0.1	-	0.18	180	4623.5	38.93
0.20	0.1	-	0.39	390	4626.5	84.30
0.30	0.2	-	0.74	740	4629.6	159.84
0.40	0.3	-	1.19	1190	4632.6	256.88
0.50	0.3	-	1.55	1550	4635.6	334.37
0.60	0.4	-	2.01	2010	4638.7	433.31
0.70	0.5	-	2.42	2420	4641.8	521.35
0.80	0.5	-	2.96	2960	4644.8	637.27
0.90	0.6	-	3.44	3440	4647.8	740.13
1.00	0.7	-	3.97	3970	4650.9	853.59
1.10	0.7	-	4.57	4570	4653.9	981.98
1.20	0.8	-	5.36	5360	4657.0	1150.96
1.30	0.9	-	6.43	6430	4660.1	1379.79
1.40	0.9	-	7.73	7730	4663.1	1657.68
1.50	1.0	-	9.46	9460	4666.2	2027.35
1.60	1.0	-	11.93	11930	4669.3	2555.00
1.70	1.1	-	13.83	13830	4672.4	2959.94
1.80	1.2	-	15.20	15200	4675.5	3250.98
1.90	1.2	-	16.04	16040	4678.5	3428.42
2.01	1.3	-	16.35	16350	4681.8	$\boxed{3492.27}$
2.11	1.4	-	16.05	16050	4685.1	3425.72
2.21	1.4	-	15.42	15420	4688.0	3289.22
2.30	1.5	-	14.78	14780	4691.0	3150.72
2.40	1.6	-	13.98	13980	4694.1	2978.20

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Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190188
Job No.: SHK190036
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD003-S32-1
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 6/11/2019
W.O. No.#: -
Date Received: 5/11/2019

Information provided by Client

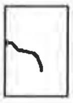
Specimen Details

Diameter of specimen	mm	76.6	Wet mass of specimen	g	1214.9
Length of specimen	mm	149.6	Dry mass of specimen	g	-
Area of specimen	mm^2	4608.4	Moisture content	%	-
Volume of specimen	cm^3	689.41	Bulk density	Mg/m^3	1.76
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

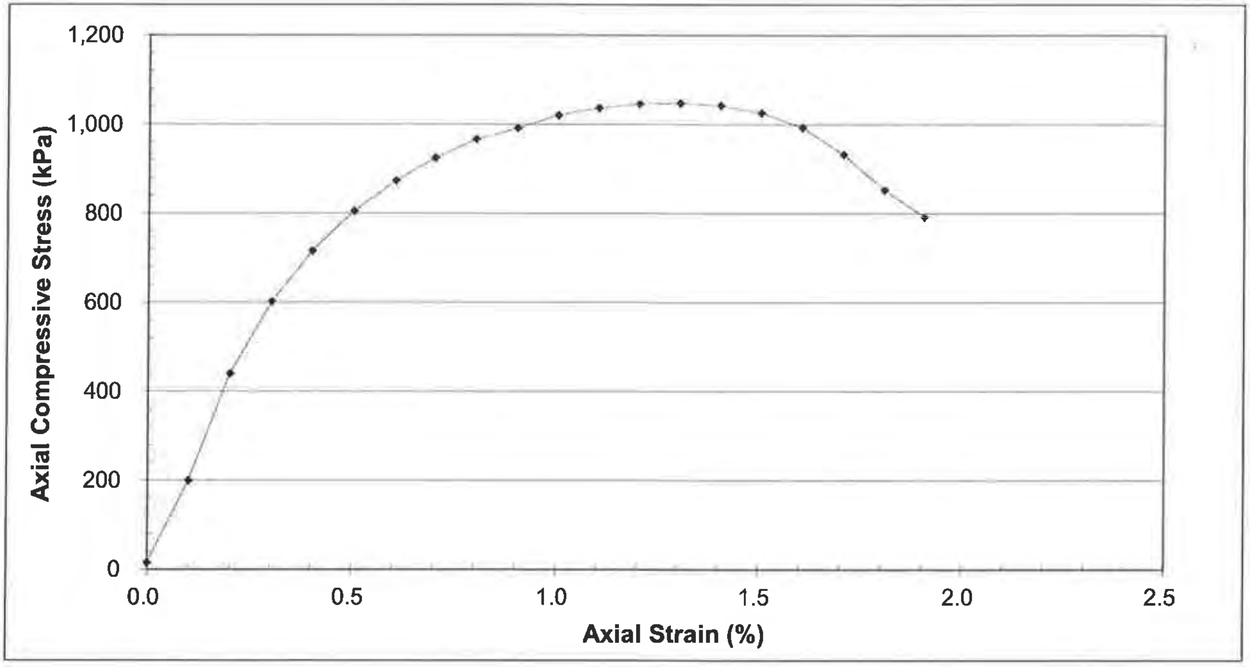
* Delete whichever is inappropriate

Visual Description: Olive grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1047	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	1.3	%	
Unconfined compressive strength, (q_u)	1047	kPa	

Graph



Remarks : Mixing Date : 19/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming
Certified by :
HUI King Fai

Date : 6 November 2019
Date : 8 November 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190188
Job No.: SHK190036
Page: 2 of 2

Client#:	Sang Hing - Kuly Joint Venture
Project#:	YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#:	-	Depth (m)#:	-	Date of Test:	6/11/2019
Sample No.#:	LD003-S32-1	Actual Depth (m):	-	W.O. No.#:	-
Sample Type#:	PT75	Sample Origin#:	Contaminated soil mixed with 10% cement and 10% sand	Date Received:	5/11/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01B	Original length (L_o)	mm	149.6
		Original area (A_o)	mm^2	4608.4

The compression was terminated at 1.9% of axial strain and the peak axial compressive stress is reached at 1.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4608.4	15.19
0.15	0.1	-	0.92	920	4613.0	199.44
0.30	0.2	-	2.03	2030	4617.6	439.62
0.45	0.3	-	2.78	2780	4622.3	601.43
0.60	0.4	-	3.31	3310	4626.9	715.38
0.75	0.5	-	3.73	3730	4631.7	805.32
0.91	0.6	-	4.05	4050	4636.5	873.50
1.05	0.7	-	4.29	4290	4641.0	924.37
1.20	0.8	-	4.49	4490	4645.7	966.49
1.35	0.9	-	4.61	4610	4650.4	991.31
1.50	1.0	-	4.75	4750	4655.1	1020.39
1.65	1.1	-	4.83	4830	4659.8	1036.53
1.80	1.2	-	4.88	4880	4664.6	1046.19
1.95	1.3	-	4.89	4890	4669.3	$\boxed{1047.27}$
2.10	1.4	-	4.87	4870	4674.0	1041.92
2.25	1.5	-	4.80	4800	4678.8	1025.90
2.40	1.6	-	4.65	4650	4683.6	992.83
2.55	1.7	-	4.37	4370	4688.4	932.09
2.70	1.8	-	4.00	4000	4693.2	852.30
2.85	1.9	-	3.72	3720	4697.9	791.84

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S33
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

Specimen Details

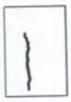
Diameter of specimen	mm	77.5	Wet mass of specimen	g	1368.4
Length of specimen	mm	151.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	716.09	Bulk density	Mg/m^3	1.91
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

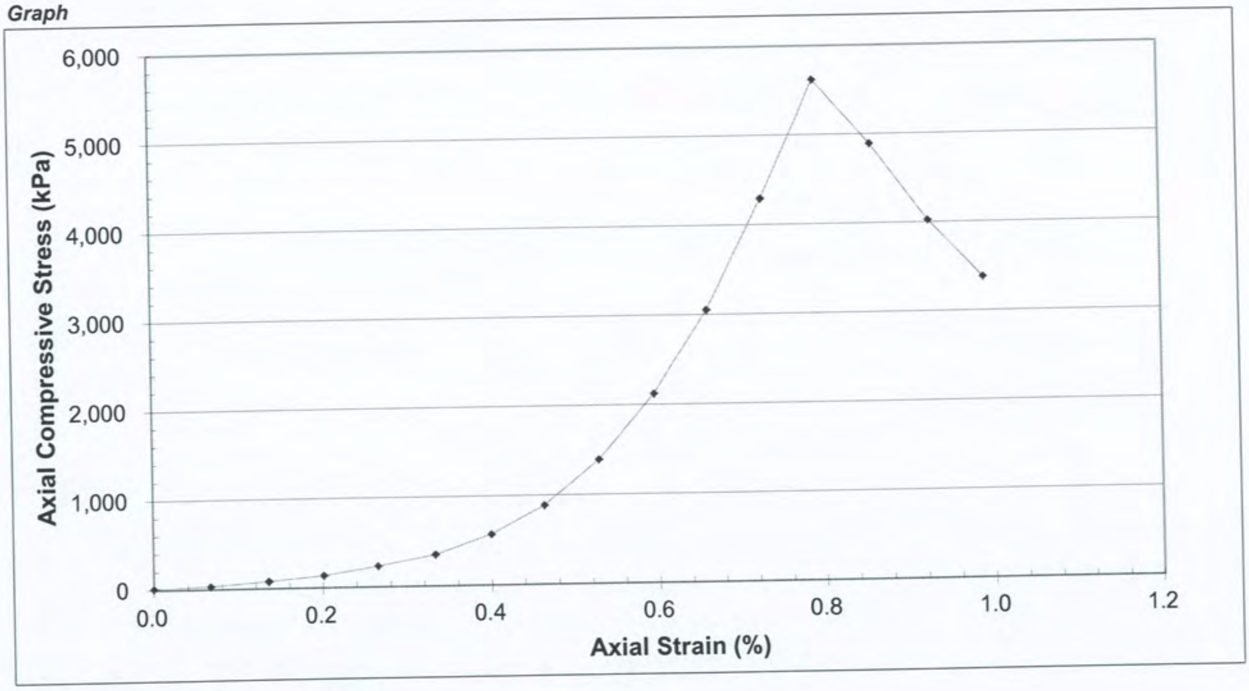
Visual Description: Light greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	5617	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.79	%	
Unconfined compressive strength, (q_u)	5617	kPa	

Graph



Remarks : Mixing Date : 21/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 2 December 2019

Certified by :
HUI King Fai

Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Depth (m)[#]: -
Date of Test: 2/12/2019
Sample No.[#]: S3-SC074A 02-12-2019 LD003-S33
Actual Depth (m): -
W.O. No.[#]: -

Sample Type[#]: PT75
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.8
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4717.3	12.72
0.10	0.1	-	0.16	160	4720.4	33.90
0.21	0.1	-	0.38	380	4723.7	80.45
0.31	0.2	-	0.64	640	4726.8	135.40
0.40	0.3	-	1.10	1100	4729.9	232.57
0.51	0.3	-	1.67	1670	4733.0	352.84
0.61	0.4	-	2.70	2700	4736.2	570.07
0.70	0.5	-	4.20	4200	4739.2	886.22
0.80	0.5	-	6.60	6600	4742.4	1391.71
0.90	0.6	-	10.07	10070	4745.5	2122.00
1.00	0.7	-	14.48	14480	4748.6	3049.31
1.10	0.7	-	20.38	20380	4751.8	4288.91
1.20	0.8	-	26.71	26710	4754.9	5617.38
1.30	0.9	-	23.28	23280	4758.1	4892.73
1.40	0.9	-	19.16	19160	4761.3	4024.08
1.50	1.0	-	16.09	16090	4764.4	3377.12

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S34
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

Specimen Details

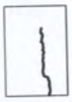
Diameter of specimen	mm	77.2	Wet mass of specimen	g	1369.5
Length of specimen	mm	152.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	715.70	Bulk density	Mg/m^3	1.91
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

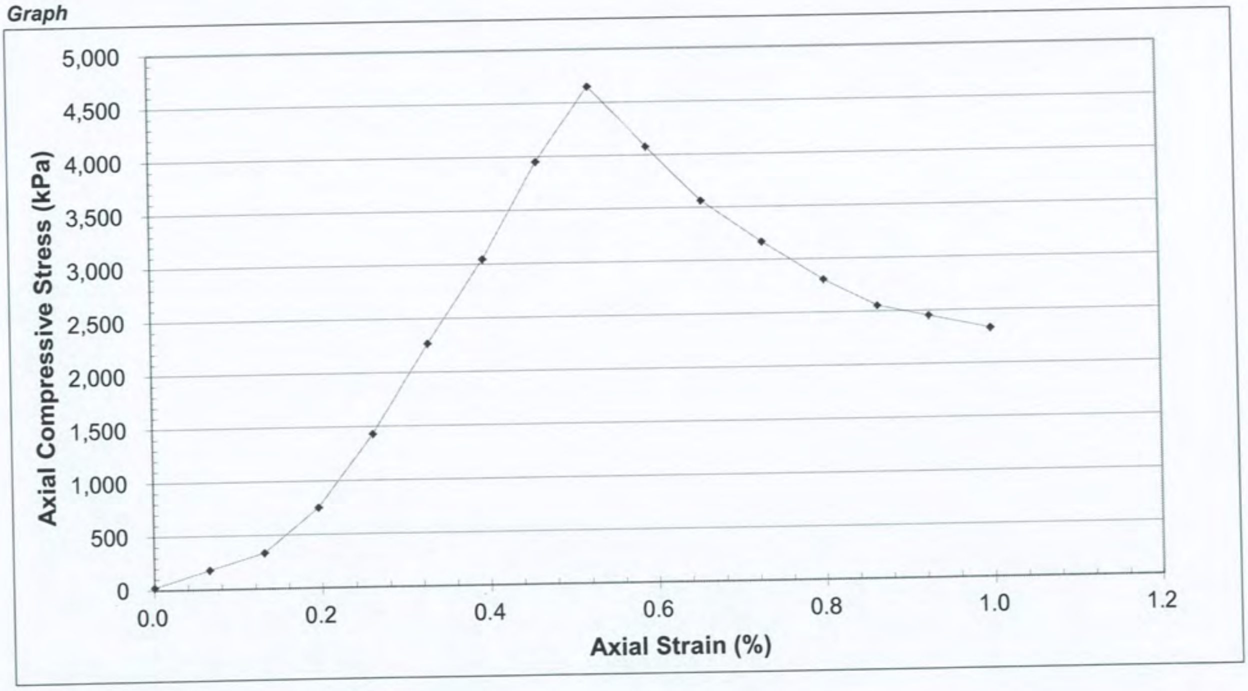
Visual Description: Light greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4650	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.52	%	
Unconfined compressive strength, (q_u)	4650	kPa	

Graph



Remarks : Mixing Date : 21/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 2 December 2019

Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 2/12/2019
Sample No.#: S3-SC074A
02-12-2019
LD003-S34
Actual Depth (m): -
W.O. No.#: -
Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.9
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.10	100	4680.8	21.36
0.10	0.1	-	0.85	850	4683.9	181.47
0.20	0.1	-	1.57	1570	4687.0	334.97
0.30	0.2	-	3.52	3520	4690.0	750.53
0.40	0.3	-	6.71	6710	4693.1	1429.75
0.50	0.3	-	10.64	10640	4696.2	2265.64
0.60	0.4	-	14.32	14320	4699.4	3047.19
0.70	0.5	-	18.58	18580	4702.5	3951.09
0.80	0.5	-	21.88	21880	4705.5	$\boxed{4649.91}$
0.90	0.6	-	19.21	19210	4708.7	4079.69
1.00	0.7	-	16.79	16790	4711.8	3563.43
1.11	0.7	-	14.94	14940	4715.1	3168.52
1.22	0.8	-	13.24	13240	4718.6	2805.90
1.32	0.9	-	12.05	12050	4721.7	2552.06
1.42	0.9	-	11.58	11580	4724.6	2451.02
1.53	1.0	-	11.01	11010	4728.0	2328.66

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S35
Depth (m)#: -
Actual Depth (m): -
Date of Test: 2/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

Information provided by Client

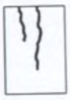
Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1374.2
Length of specimen	mm	152.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	717.09	Bulk density	Mg/m^3	1.92
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

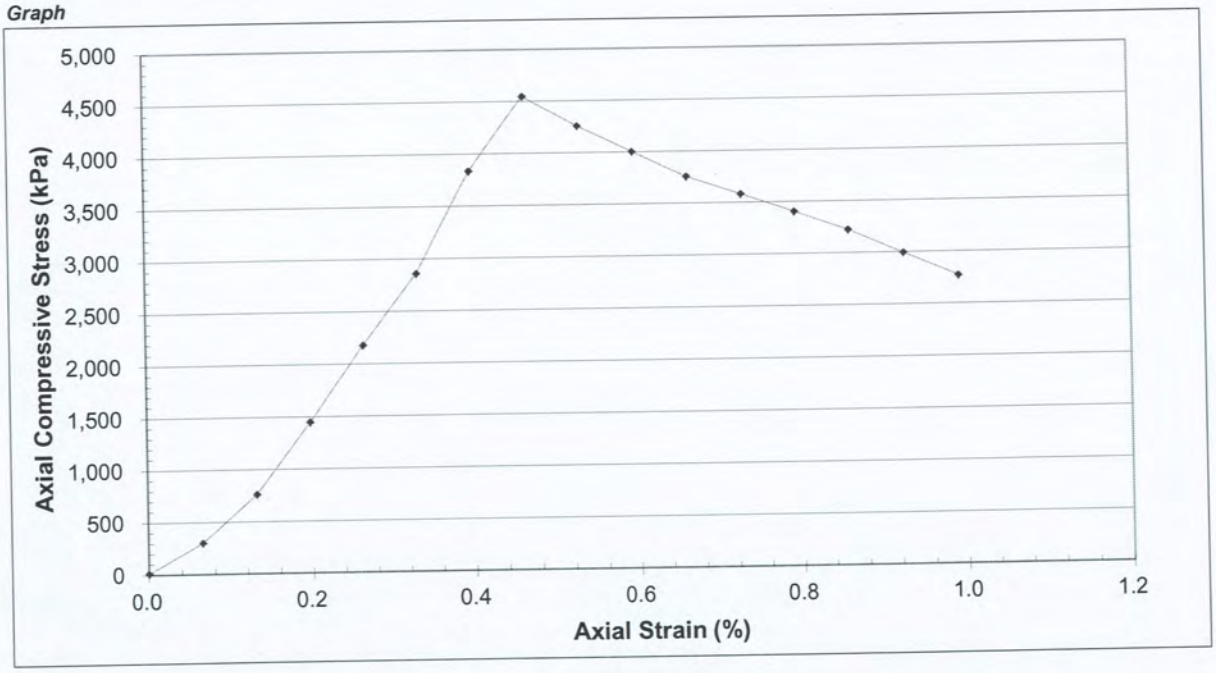
* Delete whichever is inappropriate

Visual Description: Light greyish brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4547	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.46	%		
Unconfined compressive strength, (q_u)	4547	kPa		

Graph



Remarks : Mixing Date : 21/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming
Certified by : HUI King Fai

Date : 2 December 2019
Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Depth (m)[#]: -
Date of Test: 2/12/2019
Sample No.[#]: S3-SC074A 02-12-2019 LD003-S35
Actual Depth (m): -
W.O. No.[#]: -
Sample Type[#]: PT75
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.8
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4693.0	12.79
0.10	0.1	-	1.41	1410	4696.1	300.25
0.20	0.1	-	3.57	3570	4699.2	759.71
0.30	0.2	-	6.81	6810	4702.3	1448.23
0.40	0.3	-	10.25	10250	4705.4	2178.35
0.50	0.3	-	13.46	13460	4708.5	2858.65
0.61	0.4	-	18.07	18070	4711.6	3835.18
0.71	0.5	-	21.44	21440	4714.8	4547.42
0.81	0.5	-	20.08	20080	4717.9	4256.13
0.91	0.6	-	18.90	18900	4721.0	4003.36
1.01	0.7	-	17.75	17750	4724.2	3757.27
1.11	0.7	-	16.93	16930	4727.3	3581.31
1.21	0.8	-	16.11	16110	4730.5	3405.58
1.31	0.9	-	15.25	15250	4733.6	3221.63
1.41	0.9	-	14.18	14180	4736.8	2993.59
1.51	1.0	-	13.13	13130	4739.9	2770.07

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019 LD003-S36
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1371.8
Length of specimen	mm	152.5	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	708.29	Bulk density	Mg/m^3	1.94
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

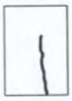
Visual Description: Light greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

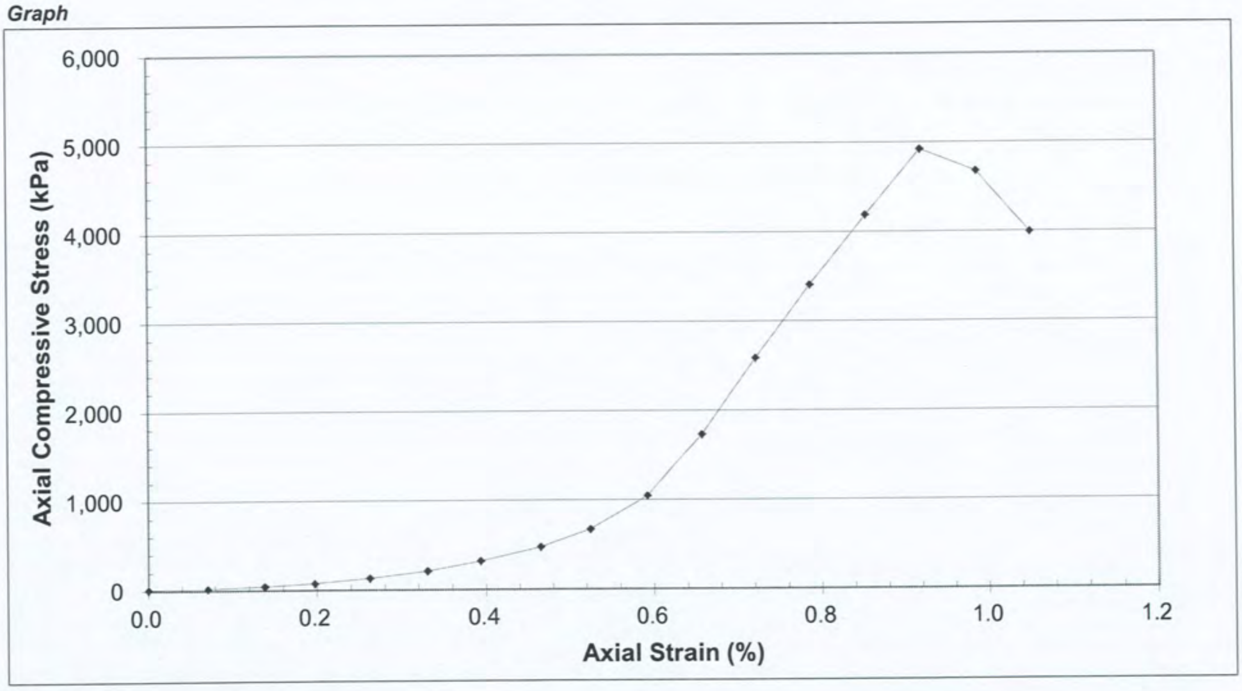
Compression Results

Maximum axial stress	4924	kPa
Axial strain at failure	0.92	%
Unconfined compressive strength, (q_u)	4924	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 21/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 2 December 2019

Certified by :
HUI King Fai

Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 2/12/2019
Sample No.#: S3-SC074A
02-12-2019
LD003-S36
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.5
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4644.5	10.77
0.11	0.1	-	0.09	90	4647.8	19.36
0.21	0.1	-	0.21	210	4651.0	45.15
0.30	0.2	-	0.35	350	4653.7	75.21
0.40	0.3	-	0.61	610	4656.8	130.99
0.50	0.3	-	0.98	980	4659.9	210.30
0.60	0.4	-	1.49	1490	4662.9	319.54
0.71	0.5	-	2.21	2210	4666.2	473.62
0.80	0.5	-	3.14	3140	4669.0	672.52
0.90	0.6	-	4.88	4880	4672.2	1044.47
1.00	0.7	-	8.09	8090	4675.3	1730.39
1.10	0.7	-	12.09	12090	4678.3	2584.28
1.20	0.8	-	15.94	15940	4681.4	3404.98
1.30	0.9	-	19.61	19610	4684.5	4186.12
1.40	0.9	-	23.08	23080	4687.6	$\boxed{4923.59}$
1.50	1.0	-	21.94	21940	4690.8	4677.24
1.60	1.1	-	18.74	18740	4693.8	3992.46

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 02-12-2019 LD003-S37
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 2/12/2019
W.O. No.#: -
Date Received: 2/12/2019

Information provided by Client

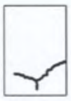
Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1377.6
Length of specimen	mm	153.6	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	718.98	Bulk density	Mg/m^3	1.92
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

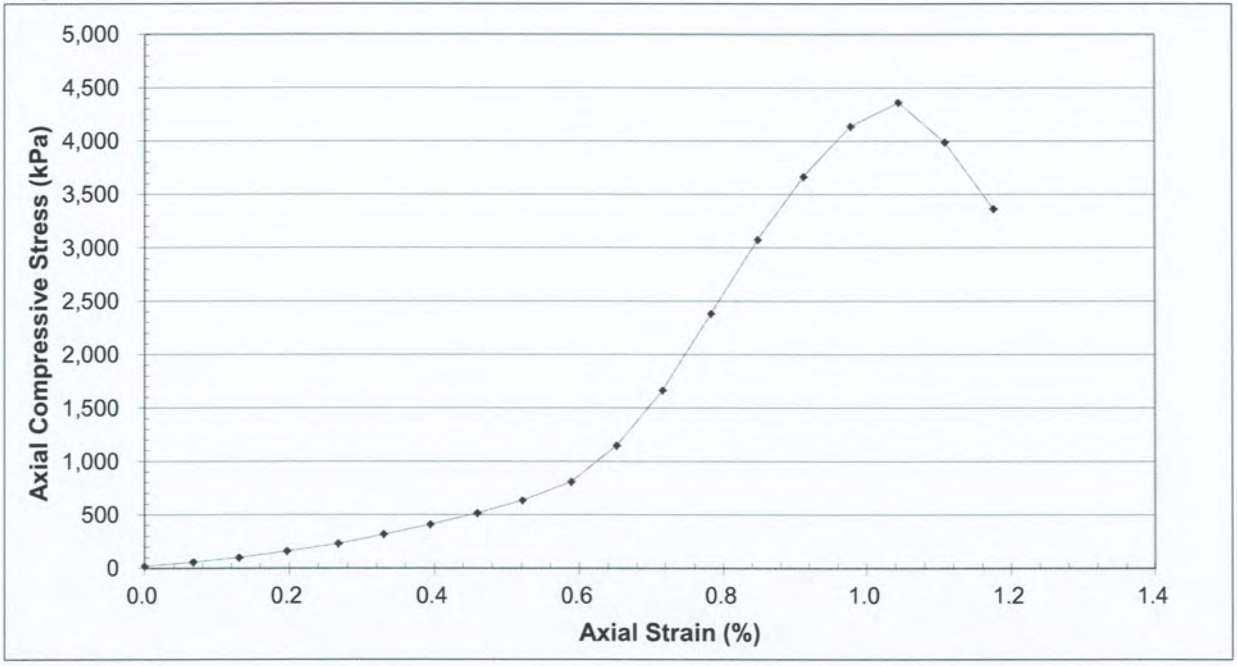
* Delete whichever is inappropriate

Visual Description: Light greyish brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	4361	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q_u)	4361	kPa		

Graph



Remarks : Mixing Date : 22/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 2 December 2019

Date : 4 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190208
Job No.: SHK190042
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
02-12-2019
LD003-S37
Depth (m)#: -
Actual Depth (m): -
Date of Test: 2/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 2/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.6
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4680.8	19.23
0.10	0.1	-	0.27	270	4684.0	57.64
0.20	0.1	-	0.47	470	4687.0	100.28
0.30	0.2	-	0.75	750	4690.1	159.91
0.41	0.3	-	1.08	1080	4693.4	230.11
0.51	0.3	-	1.49	1490	4696.3	317.27
0.61	0.4	-	1.92	1920	4699.4	408.57
0.71	0.5	-	2.42	2420	4702.5	514.62
0.80	0.5	-	2.99	2990	4705.4	635.44
0.91	0.6	-	3.81	3810	4708.6	809.16
1.00	0.7	-	5.41	5410	4711.6	1148.24
1.10	0.7	-	7.84	7840	4714.6	1662.92
1.20	0.8	-	11.24	11240	4717.8	2382.48
1.30	0.8	-	14.51	14510	4720.9	3073.59
1.40	0.9	-	17.31	17310	4723.9	3664.32
1.50	1.0	-	19.55	19550	4727.1	4135.75
1.60	1.0	-	20.63	20630	4730.2	4361.30
1.70	1.1	-	18.88	18880	4733.3	3988.76
1.81	1.2	-	15.93	15930	4736.5	3363.22

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S38
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 11/12/2019
W.O. No.#: -
Date Received: 11/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.5	Wet mass of specimen	g	1361.4
Length of specimen	mm	153.5	Dry mass of specimen	g	-
Area of specimen	mm^2	4596.3	Moisture content	%	-
Volume of specimen	cm^3	705.54	Bulk density	Mg/m^3	1.93
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

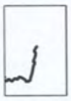
Visual Description: Light greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

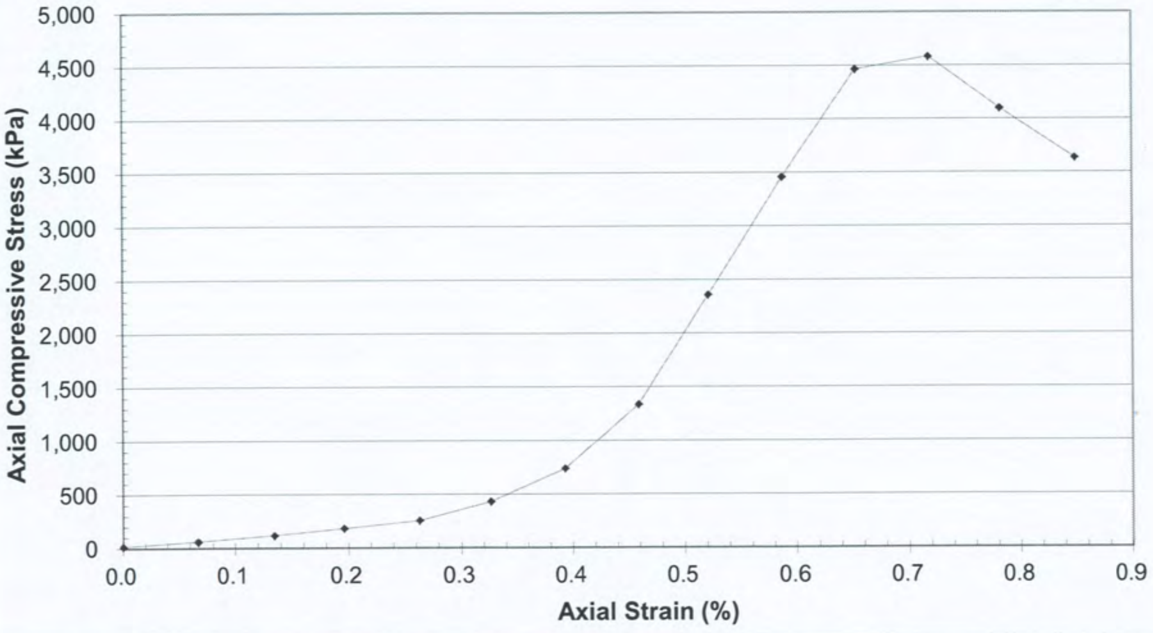
Compression Results

Maximum axial stress	4581	kPa
Axial strain at failure	0.72	%
Unconfined compressive strength, (q_u)	4581	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 22/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 11 December 2019

Date : 13 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S38
Depth (m)#: -
Actual Depth (m): -
Date of Test: 11/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.5
		Original area (A_o)	mm^2	4596.3

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4596.3	15.23
0.10	0.1	-	0.28	280	4599.4	60.88
0.21	0.1	-	0.54	540	4602.5	117.33
0.30	0.2	-	0.84	840	4605.4	182.40
0.40	0.3	-	1.17	1170	4608.5	253.88
0.50	0.3	-	1.99	1990	4611.4	431.54
0.60	0.4	-	3.40	3400	4614.5	736.81
0.70	0.5	-	6.17	6170	4617.5	1336.21
0.80	0.5	-	10.90	10900	4620.4	2359.09
0.90	0.6	-	15.99	15990	4623.5	3458.43
1.00	0.7	-	20.65	20650	4626.5	4463.37
1.10	0.7	-	21.21	21210	4629.6	4581.41
1.20	0.8	-	18.99	18990	4632.6	4099.24
1.30	0.8	-	16.85	16850	4635.7	3634.84

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190188
Job No.: SHK190036
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD003-S39
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 6/11/2019
W.O. No.#: -
Date Received: 5/11/2019

Information provided by Client

Specimen Details

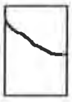
Diameter of specimen	mm	76.7	Wet mass of specimen	g	1239.4
Length of specimen	mm	152.4	Dry mass of specimen	g	-
Area of specimen	mm^2	4620.4	Moisture content	%	-
Volume of specimen	cm^3	704.15	Bulk density	Mg/m^3	1.76
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

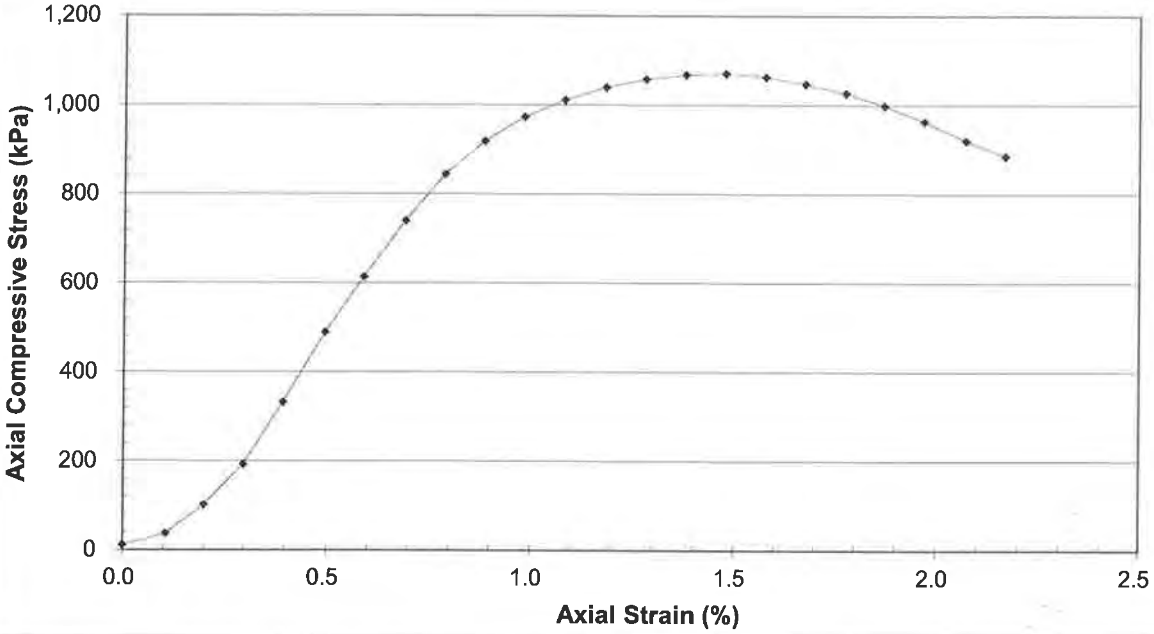
Visual Description: Olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1070	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	1.5	%	
Unconfined compressive strength, (q_u)	1070	kPa	

Graph



Remarks : Mixing Date : 23/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 6 November 2019

Date : 8 November 2019

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190188
Job No.: SHK190036
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: LD003-S39
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 6/11/2019
W.O. No.#: -
Date Received: 5/11/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01B	Original length (L_o)	mm	152.4
		Original area (A_o)	mm^2	4620.4

The compression was terminated at 2.2% of axial strain and the peak axial compressive stress is reached at 1.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4620.4	10.82
0.16	0.1	-	0.17	170	4625.3	36.75
0.31	0.2	-	0.47	470	4629.7	101.52
0.45	0.3	-	0.89	890	4634.1	192.05
0.60	0.4	-	1.54	1540	4638.6	332.00
0.75	0.5	-	2.27	2270	4643.4	488.87
0.90	0.6	-	2.85	2850	4647.8	613.20
1.05	0.7	-	3.44	3440	4652.5	739.38
1.20	0.8	-	3.93	3930	4657.1	843.88
1.35	0.9	-	4.28	4280	4661.7	918.12
1.50	1.0	-	4.54	4540	4666.2	972.94
1.65	1.1	-	4.72	4720	4671.0	1010.50
1.80	1.2	-	4.86	4860	4675.7	1039.42
1.95	1.3	-	4.95	4950	4680.3	1057.63
2.10	1.4	-	5.00	5000	4684.9	1067.25
2.25	1.5	-	5.02	5020	4689.6	1070.44
2.40	1.6	-	4.99	4990	4694.3	1062.98
2.55	1.7	-	4.92	4920	4699.1	1047.02
2.70	1.8	-	4.83	4830	4703.9	1026.81
2.85	1.9	-	4.70	4700	4708.4	998.22
3.00	2.0	-	4.54	4540	4713.1	963.27
3.15	2.1	-	4.34	4340	4718.0	919.88
3.30	2.2	-	4.18	4180	4722.7	885.09

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S40
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 11/12/2019
W.O. No.#: -
Date Received: 11/12/2019

Information provided by Client

Specimen Details

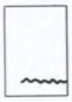
Diameter of specimen	mm	77.5	Wet mass of specimen	g	1331.5
Length of specimen	mm	151.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	712.78	Bulk density	Mg/m^3	1.87
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

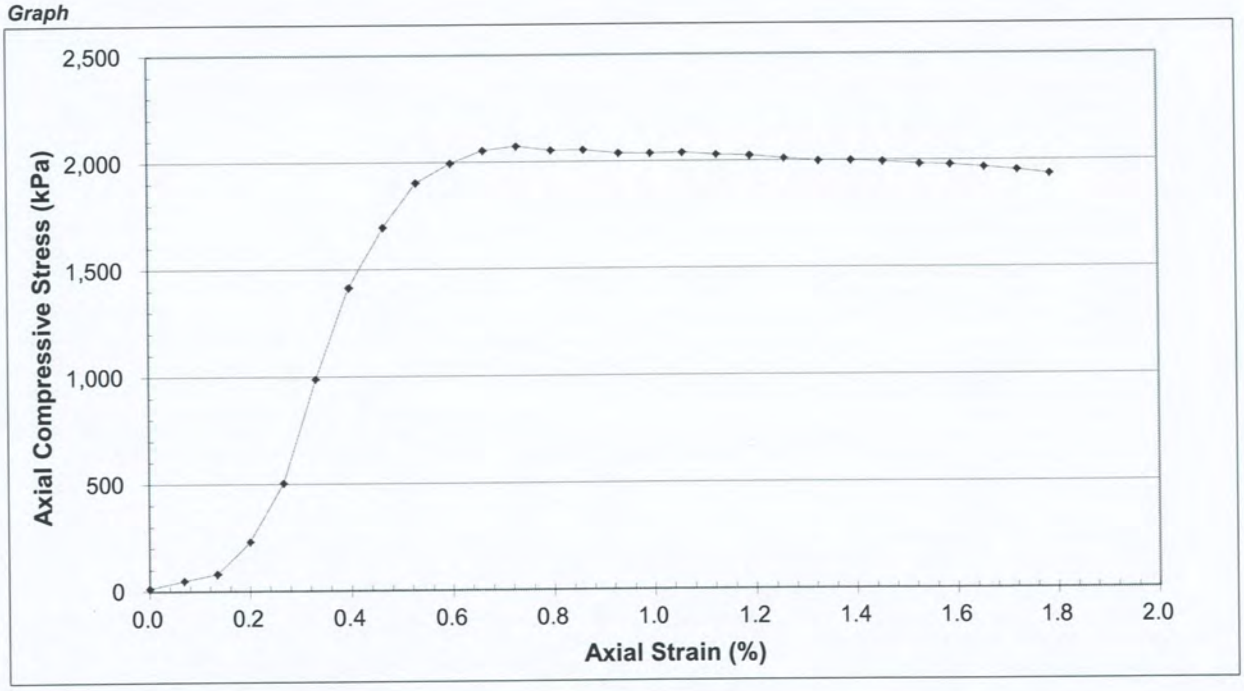
Visual Description: Greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2073	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.73	%		
Unconfined compressive strength, (q_u)	2073	kPa		

Graph



Remarks : Mixing Date : 23/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 11 December 2019

Certified by :
HUI King Fai

Date : 13 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 11/12/2019
Sample No.#: S3-SC074A 11-12-2019 S40
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.1
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1.8% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4717.3	12.72
0.10	0.1	-	0.23	230	4720.5	48.72
0.20	0.1	-	0.38	380	4723.6	80.45
0.30	0.2	-	1.09	1090	4726.7	230.60
0.40	0.3	-	2.38	2380	4729.9	503.18
0.50	0.3	-	4.68	4680	4733.0	988.80
0.60	0.4	-	6.70	6700	4736.1	1414.66
0.70	0.5	-	8.04	8040	4739.3	1696.44
0.80	0.5	-	9.03	9030	4742.4	1904.08
0.90	0.6	-	9.46	9460	4745.7	1993.39
1.00	0.7	-	9.75	9750	4748.8	2053.14
1.10	0.7	-	9.85	9850	4752.0	$\boxed{2072.82}$
1.21	0.8	-	9.76	9760	4755.3	2052.47
1.30	0.9	-	9.77	9770	4758.4	2053.23
1.41	0.9	-	9.70	9700	4761.7	2037.09
1.50	1.0	-	9.70	9700	4764.7	2035.79
1.60	1.1	-	9.72	9720	4767.8	2038.66
1.70	1.1	-	9.68	9680	4771.0	2028.92
1.80	1.2	-	9.66	9660	4774.2	2023.37
1.90	1.3	-	9.60	9600	4777.5	2009.43
2.01	1.3	-	9.55	9550	4780.8	1997.59
2.10	1.4	-	9.56	9560	4783.9	1998.36
2.20	1.5	-	9.54	9540	4787.0	1992.90
2.31	1.5	-	9.49	9490	4790.5	1980.99
2.40	1.6	-	9.48	9480	4793.5	1977.68
2.50	1.7	-	9.43	9430	4796.8	1965.90
2.60	1.7	-	9.37	9370	4800.0	1952.09
2.70	1.8	-	9.29	9290	4803.2	1934.14

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S41
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 11/12/2019
W.O. No.#: -
Date Received: 11/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1371.3
Length of specimen	mm	153.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	717.11	Bulk density	Mg/m^3	1.91
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

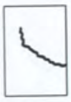
Visual Description: Greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

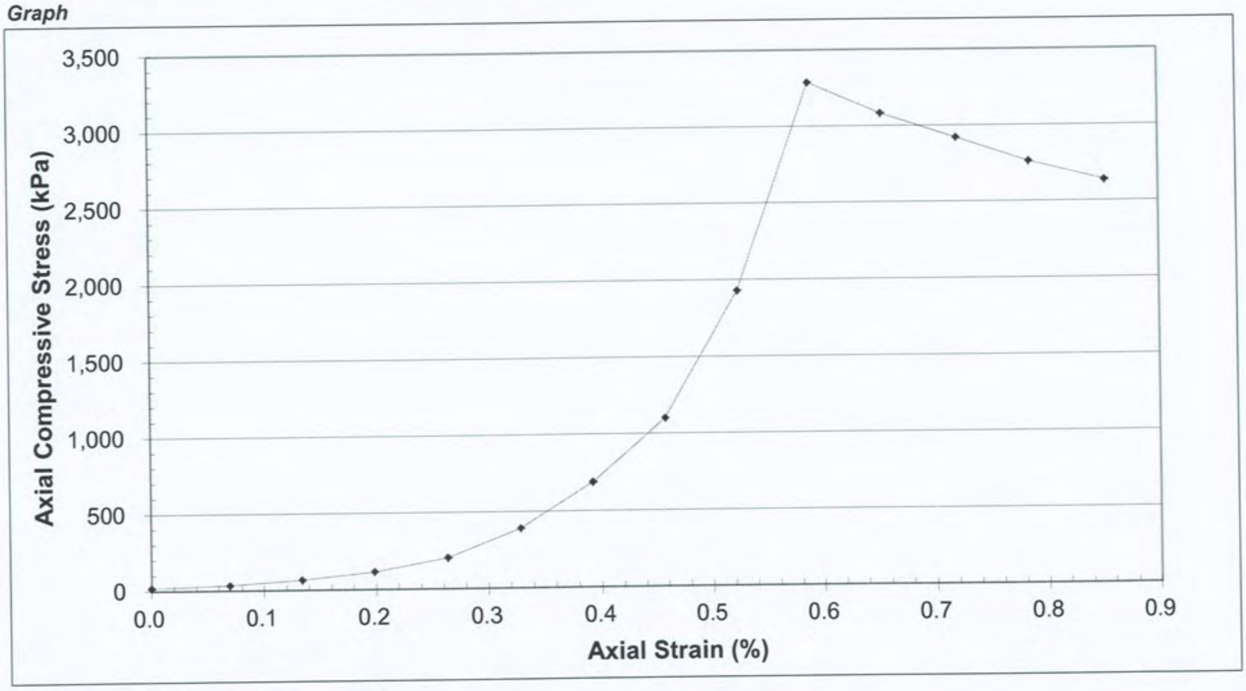
Compression Results

Maximum axial stress	3288	kPa
Axial strain at failure	0.59	%
Unconfined compressive strength, (q_u)	3288	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 25/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 11 December 2019

Date : 13 December 2019

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S41
Depth (m)#: -
Actual Depth (m): -
Date of Test: 11/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.2
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4680.8	17.09
0.11	0.1	-	0.16	160	4684.1	34.16
0.21	0.1	-	0.31	310	4687.1	66.14
0.30	0.2	-	0.54	540	4690.2	115.13
0.40	0.3	-	0.95	950	4693.2	202.42
0.50	0.3	-	1.83	1830	4696.3	389.67
0.60	0.4	-	3.23	3230	4699.3	687.34
0.70	0.5	-	5.18	5180	4702.4	1101.57
0.80	0.5	-	9.07	9070	4705.4	1927.55
0.90	0.6	-	15.48	15480	4708.5	$\boxed{3287.64}$
1.00	0.7	-	14.52	14520	4711.6	3081.73
1.10	0.7	-	13.77	13770	4714.8	2920.60
1.20	0.8	-	13.03	13030	4717.9	2761.84
1.31	0.9	-	12.46	12460	4721.1	2639.24

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Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
11-12-2019 S42
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 11/12/2019
W.O. No.#: -
Date Received: 11/12/2019

Information provided by Client

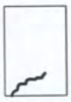
Specimen Details

Diameter of specimen	mm	76.7	Wet mass of specimen	g	1354.4
Length of specimen	mm	151.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4620.4	Moisture content	%	-
Volume of specimen	cm^3	701.84	Bulk density	Mg/m^3	1.93
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

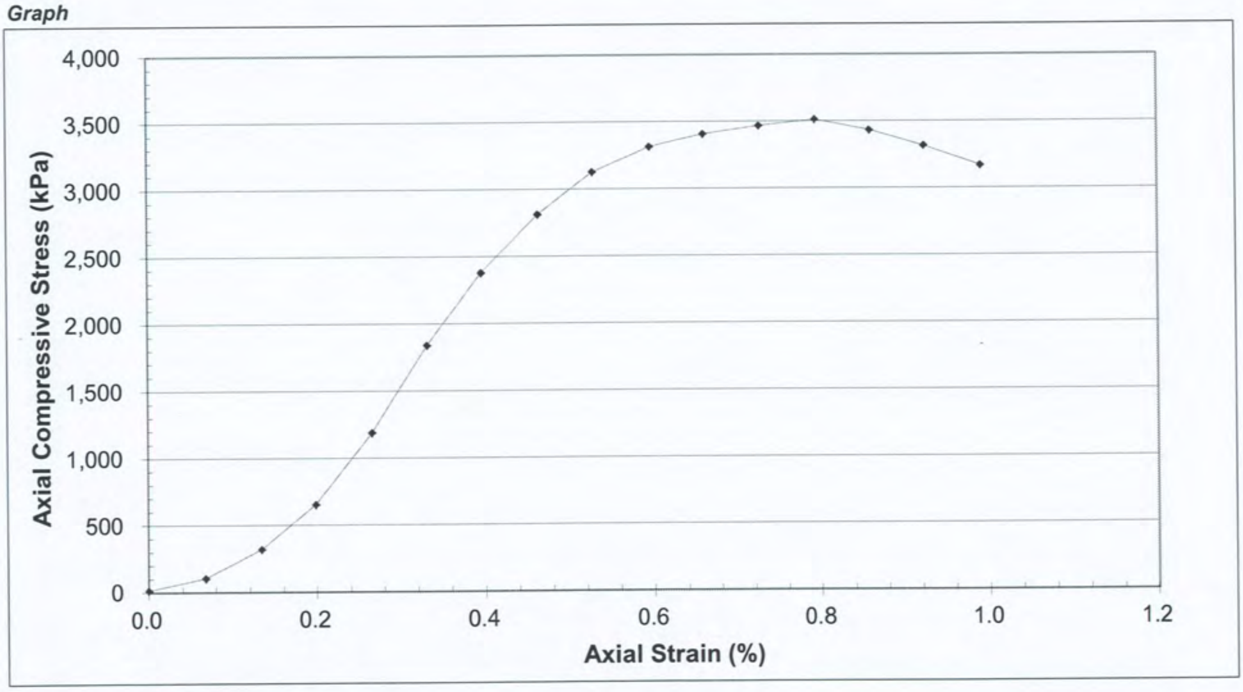
* Delete whichever is inappropriate

Visual Description: Greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3513	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.79	%		
Unconfined compressive strength, (q_u)	3513	kPa		

Graph



Remarks : Mixing Date : 25/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 11 December 2019

Date : 13 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 11/12/2019
Sample No.#: S3-SC074A 11-12-2019 S42
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.9
		Original area (A_o)	mm^2	4620.4

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4620.4	15.15
0.10	0.1	-	0.48	480	4623.5	103.82
0.20	0.1	-	1.48	1480	4626.6	319.89
0.30	0.2	-	3.03	3030	4629.6	654.48
0.40	0.3	-	5.50	5500	4632.7	1187.21
0.50	0.3	-	8.52	8520	4635.8	1837.89
0.60	0.4	-	11.03	11030	4638.8	2377.79
0.70	0.5	-	13.05	13050	4641.9	2811.35
0.80	0.5	-	14.52	14520	4644.9	3125.99
0.91	0.6	-	15.40	15400	4648.1	3313.18
1.00	0.7	-	15.84	15840	4651.1	3405.67
1.10	0.7	-	16.13	16130	4654.2	3465.68
1.21	0.8	-	16.36	16360	4657.4	$\boxed{3512.72}$
1.30	0.9	-	16.00	16000	4660.4	3433.17
1.40	0.9	-	15.46	15460	4663.5	3315.14
1.50	1.0	-	14.78	14780	4666.6	3167.18

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
11-12-2019 S43
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 11/12/2019
W.O. No.#: -
Date Received: 11/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1354.5
Length of specimen	mm	152.5	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	708.29	Bulk density	Mg/m^3	1.91
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

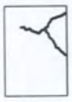
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

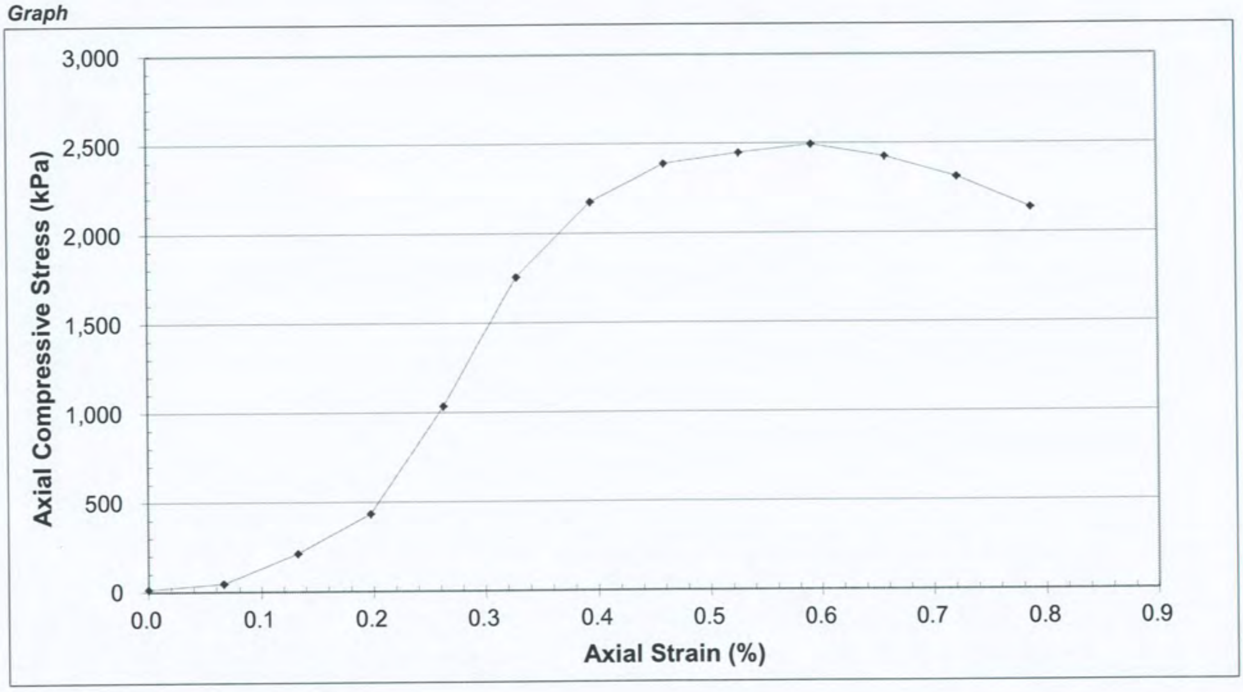
Compression Results

Maximum axial stress	2493	kPa
Axial strain at failure	0.59	%
Unconfined compressive strength, (q_u)	2493	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 26/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 11 December 2019

Date : 13 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 11/12/2019
Sample No.#: S3-SC074A 11-12-2019 S43
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.5
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4644.5	12.92
0.10	0.1	-	0.21	210	4647.6	45.18
0.20	0.1	-	0.99	990	4650.7	212.87
0.30	0.2	-	2.02	2020	4653.7	434.06
0.40	0.3	-	4.82	4820	4656.8	1035.05
0.50	0.3	-	8.18	8180	4659.8	1755.42
0.60	0.4	-	10.14	10140	4662.9	2174.61
0.70	0.5	-	11.14	11140	4666.0	2387.49
0.80	0.5	-	11.43	11430	4669.1	2448.00
0.90	0.6	-	11.65	11650	4672.2	$\boxed{2493.49}$
1.00	0.7	-	11.34	11340	4675.3	2425.52
1.10	0.7	-	10.81	10810	4678.3	2310.66
1.20	0.8	-	10.01	10010	4681.4	2138.25

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S44
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 11/12/2019
W.O. No.#: -
Date Received: 11/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.8	Wet mass of specimen	g	1335.5
Length of specimen	mm	152.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4632.5	Moisture content	%	-
Volume of specimen	cm^3	707.84	Bulk density	Mg/m^3	1.89
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

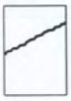
Visual Description: Greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

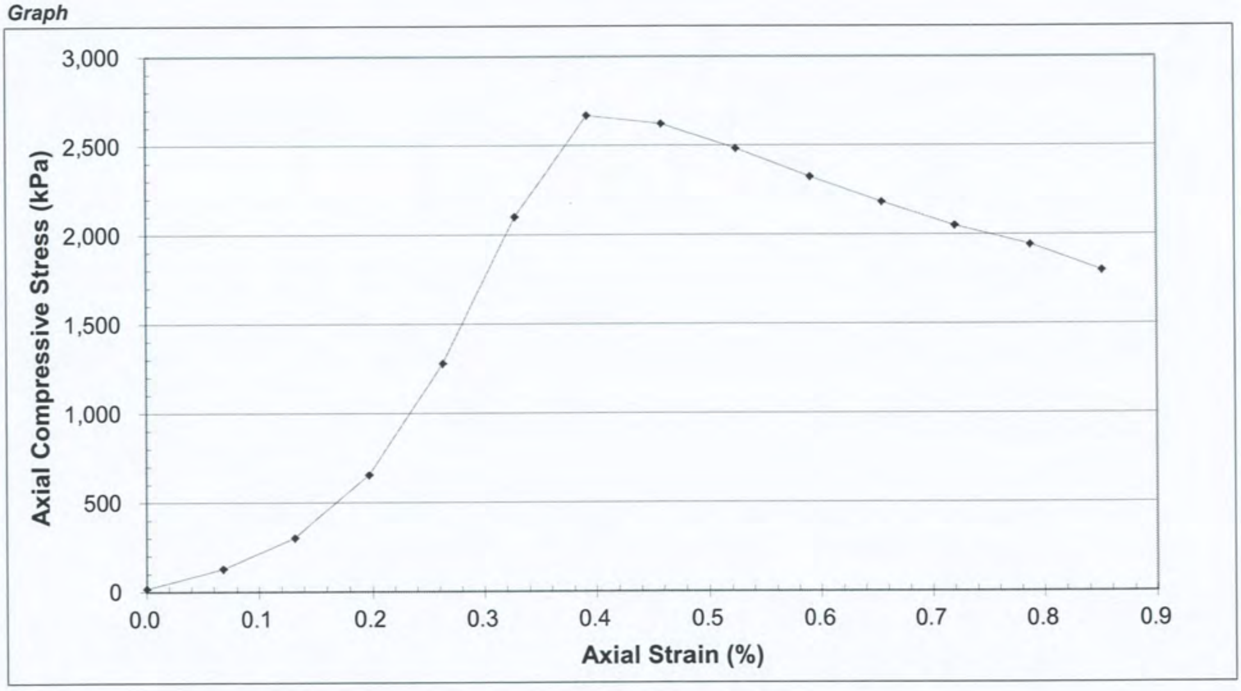
Compression Results

Maximum axial stress	2668	kPa
Axial strain at failure	0.39	%
Unconfined compressive strength, (q_u)	2668	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 26/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 11 December 2019

Date : 13 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
11-12-2019 S44
Depth (m)#: -
Actual Depth (m): -
Date of Test: 11/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.8
		Original area (A_o)	mm^2	4632.5

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4632.5	17.27
0.10	0.1	-	0.60	600	4635.6	129.43
0.20	0.1	-	1.40	1400	4638.6	301.82
0.30	0.2	-	3.04	3040	4641.6	654.95
0.40	0.3	-	5.94	5940	4644.7	1278.88
0.50	0.3	-	9.76	9760	4647.7	2099.96
0.60	0.4	-	12.41	12410	4650.7	$\boxed{2668.40}$
0.70	0.5	-	12.20	12200	4653.8	2621.50
0.80	0.5	-	11.56	11560	4656.9	2482.35
0.90	0.6	-	10.83	10830	4660.0	2324.05
1.00	0.7	-	10.17	10170	4663.0	2180.99
1.10	0.7	-	9.56	9560	4666.1	2048.83
1.20	0.8	-	9.07	9070	4669.3	1942.49
1.30	0.9	-	8.40	8400	4672.2	1797.85

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Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S45
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 11/12/2019
W.O. No.#: -
Date Received: 11/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.7	Wet mass of specimen	g	1336.3
Length of specimen	mm	152.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4620.4	Moisture content	%	-
Volume of specimen	cm^3	706.00	Bulk density	Mg/m^3	1.89
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

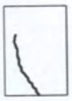
* Delete whichever is inappropriate

Visual Description: Greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

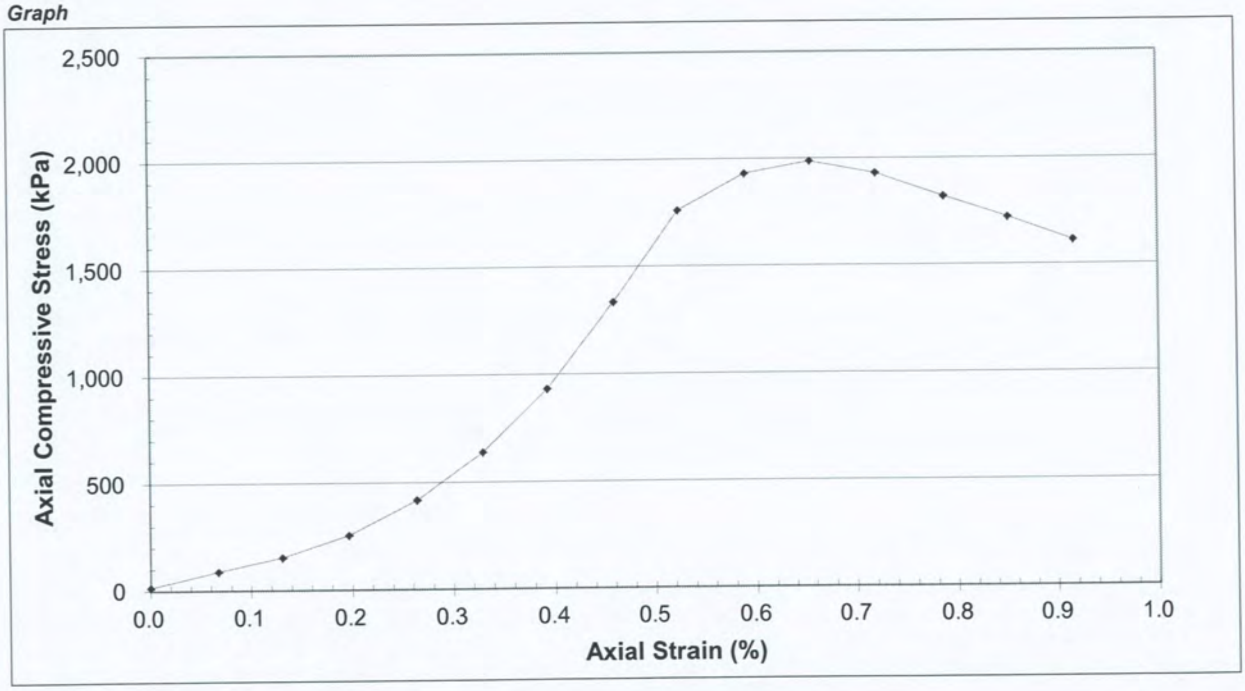
Compression Results

Maximum axial stress	1987	kPa
Axial strain at failure	0.66	%
Unconfined compressive strength, (q_u)	1987	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 28/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 11 December 2019

Certified by :
HUI King Fai

Date : 13 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
11-12-2019 S45

Depth (m)#: -
Actual Depth (m): -

Date of Test: 11/12/2019
W.O. No.#: -

Sample Type#: PT75

Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.8
		Original area (A_o)	mm^2	4620.4

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4620.4	15.15
0.10	0.1	-	0.41	410	4623.5	88.68
0.20	0.1	-	0.71	710	4626.5	153.46
0.30	0.2	-	1.18	1180	4629.5	254.89
0.40	0.3	-	1.93	1930	4632.6	416.61
0.50	0.3	-	2.96	2960	4635.7	638.53
0.60	0.4	-	4.32	4320	4638.6	931.31
0.70	0.5	-	6.19	6190	4641.7	1333.55
0.80	0.5	-	8.17	8170	4644.8	1758.97
0.90	0.6	-	8.97	8970	4647.8	1929.93
1.00	0.7	-	9.24	9240	4650.9	1986.72
1.10	0.7	-	8.98	8980	4653.9	1929.55
1.20	0.8	-	8.47	8470	4657.1	1818.74
1.30	0.9	-	8.02	8020	4660.1	1721.00
1.40	0.9	-	7.52	7520	4663.2	1612.64

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: S3-SC074A 11-12-2019 S46
Sample Type[#]: PT75
Depth (m)[#]: -
Actual Depth (m): -
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 11/12/2019
W.O. No.[#]: -
Date Received: 11/12/2019

[#] Information provided by Client

Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1330.2
Length of specimen	mm	151.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	702.25	Bulk density	Mg/m^3	1.89
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

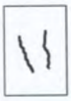
Visual Description: Light greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

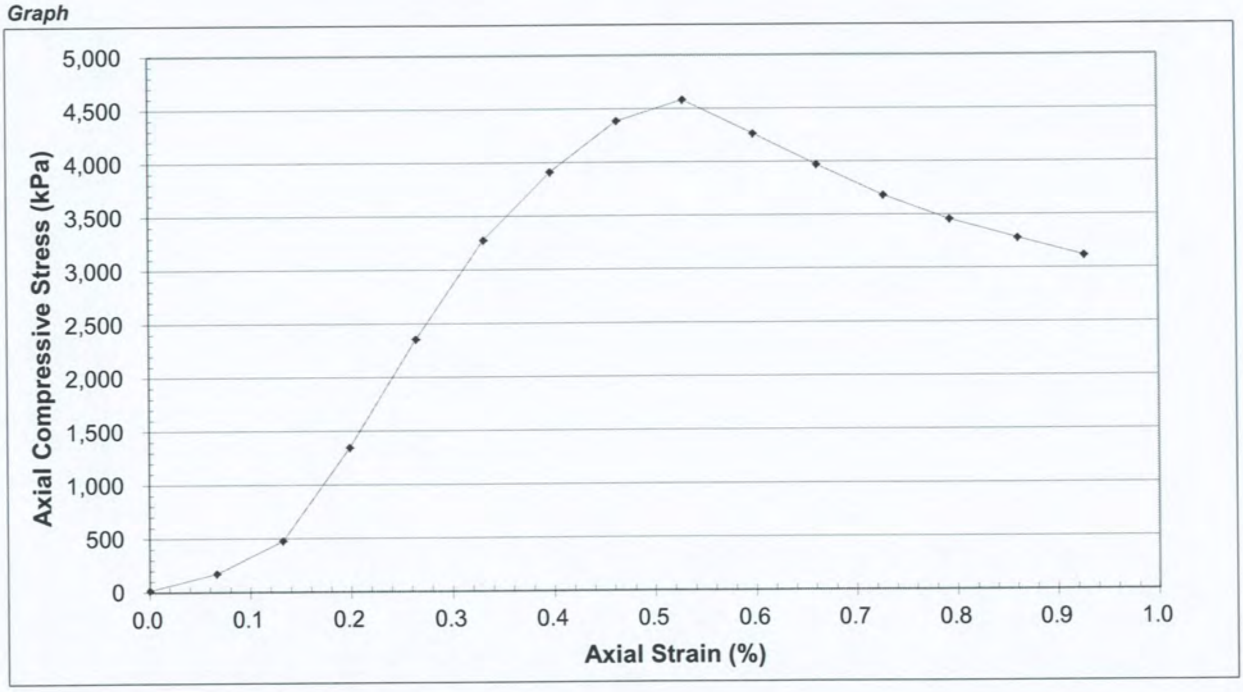
Compression Results

Maximum axial stress	4581	kPa
Axial strain at failure	0.53	%
Unconfined compressive strength, (q_u)	4581	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 28/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 11 December 2019

Certified by :
HUI King Fai

Date : 13 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S46
Depth (m)#: -
Actual Depth (m): -
Date of Test: 11/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.2
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.07*	70	4644.5	15.07
0.10	0.1	-	*0.80*	800	4647.6	172.13
0.20	0.1	-	*2.22*	2220	4650.7	477.35
0.30	0.2	-	*6.26*	6260	4653.8	1345.14
0.40	0.3	-	*10.96*	10960	4656.9	2353.52
0.50	0.3	-	*15.26*	15260	4660.0	3274.69
0.60	0.4	-	*18.23*	18230	4663.1	3909.44
0.70	0.5	-	*20.46*	20460	4666.2	4384.75
0.80	0.5	-	*21.39*	21390	4669.3	$\boxed{4581.01}$
0.91	0.6	-	*19.92*	19920	4672.5	4263.24
1.00	0.7	-	*18.56*	18560	4675.5	3969.64
1.10	0.7	-	*17.22*	17220	4678.6	3680.58
1.20	0.8	-	*16.18*	16180	4681.7	3456.01
1.30	0.9	-	*15.37*	15370	4684.9	3280.77
1.40	0.9	-	*14.61*	14610	4688.0	3116.46

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S47
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 11/12/2019
W.O. No.#: -
Date Received: 11/12/2019

Information provided by Client

Specimen Details

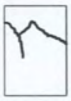
Diameter of specimen	mm	77.1	Wet mass of specimen	g	1368.5
Length of specimen	mm	152.4	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	711.51	Bulk density	Mg/m^3	1.92
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

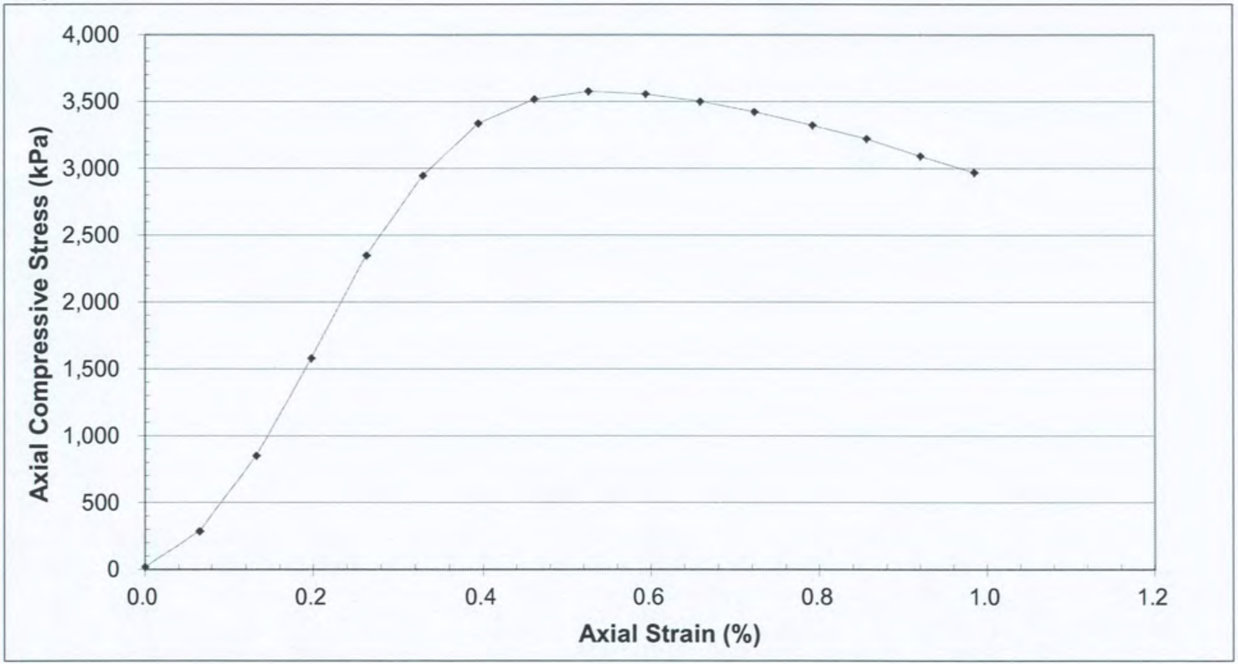
Visual Description: Greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3577	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.53	%	
Unconfined compressive strength, (q_u)	3577	kPa	

Graph



Remarks : Mixing Date : 29/10/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 11 December 2019

Date : 13 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190214
Job No.: SHK190045
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 11-12-2019 S47
Depth (m)#: -
Actual Depth (m): -
Date of Test: 11/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 11/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.4
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4668.7	17.14
0.10	0.1	-	1.34	1340	4671.8	286.83
0.20	0.1	-	3.98	3980	4674.9	851.35
0.30	0.2	-	7.39	7390	4678.0	1579.75
0.40	0.3	-	10.99	10990	4681.0	2347.78
0.50	0.3	-	13.80	13800	4684.1	2946.12
0.60	0.4	-	15.64	15640	4687.2	3336.74
0.70	0.5	-	16.50	16500	4690.4	3517.85
0.80	0.5	-	16.79	16790	4693.4	3577.34
0.91	0.6	-	16.70	16700	4696.6	3555.75
1.00	0.7	-	16.46	16460	4699.7	3502.36
1.10	0.7	-	16.10	16100	4702.7	3423.54
1.21	0.8	-	15.64	15640	4706.0	3323.42
1.31	0.9	-	15.17	15170	4709.1	3221.46
1.40	0.9	-	14.57	14570	4712.1	3092.03
1.50	1.0	-	14.00	14000	4715.2	2969.14

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S48
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1290.1
Length of specimen	mm	153.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	714.32	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

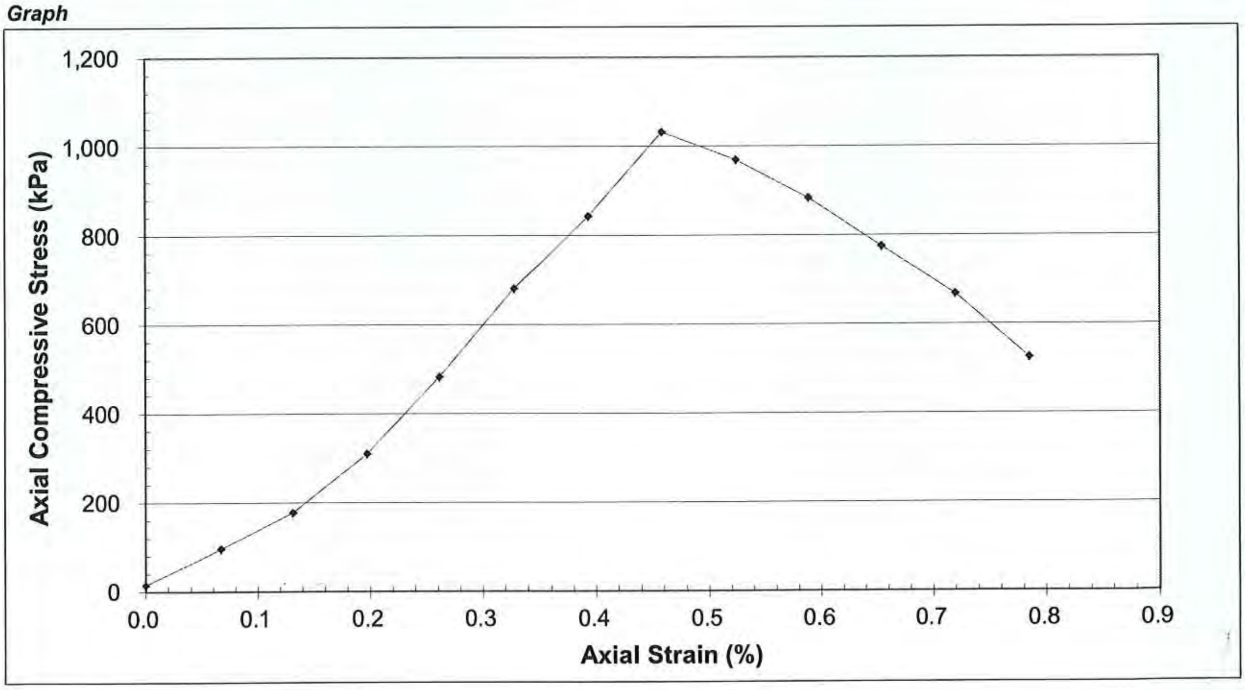
Visual Description: Olive grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1032	kPa
Axial strain at failure	0.46	%
Unconfined compressive strength, (q_u)	1032	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 30/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 December 2019

Date : 16 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: S3-SC074A 13-12-2019 S48
Depth (m)[#]: -
Actual Depth (m): -
Date of Test: 13/12/2019
W.O. No.[#]: -

Sample Type[#]: PT75
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.0
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4668.7	14.99
0.10	0.1	-	0.45	450	4671.8	96.32
0.20	0.1	-	0.83	830	4674.9	177.55
0.30	0.2	-	1.45	1450	4678.0	309.96
0.40	0.3	-	2.26	2260	4681.0	482.81
0.50	0.3	-	3.19	3190	4684.1	681.03
0.60	0.4	-	3.95	3950	4687.2	842.73
0.70	0.5	-	4.84	4840	4690.2	$\boxed{1031.93}$
0.80	0.5	-	4.55	4550	4693.3	969.46
0.90	0.6	-	4.15	4150	4696.4	883.66
1.00	0.7	-	3.64	3640	4699.5	774.55
1.10	0.7	-	3.14	3140	4702.6	667.72
1.20	0.8	-	2.47	2470	4705.7	524.90

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Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S49
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.5	Wet mass of specimen	g	1295.6
Length of specimen	mm	152.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	718.44	Bulk density	Mg/m^3	1.80
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

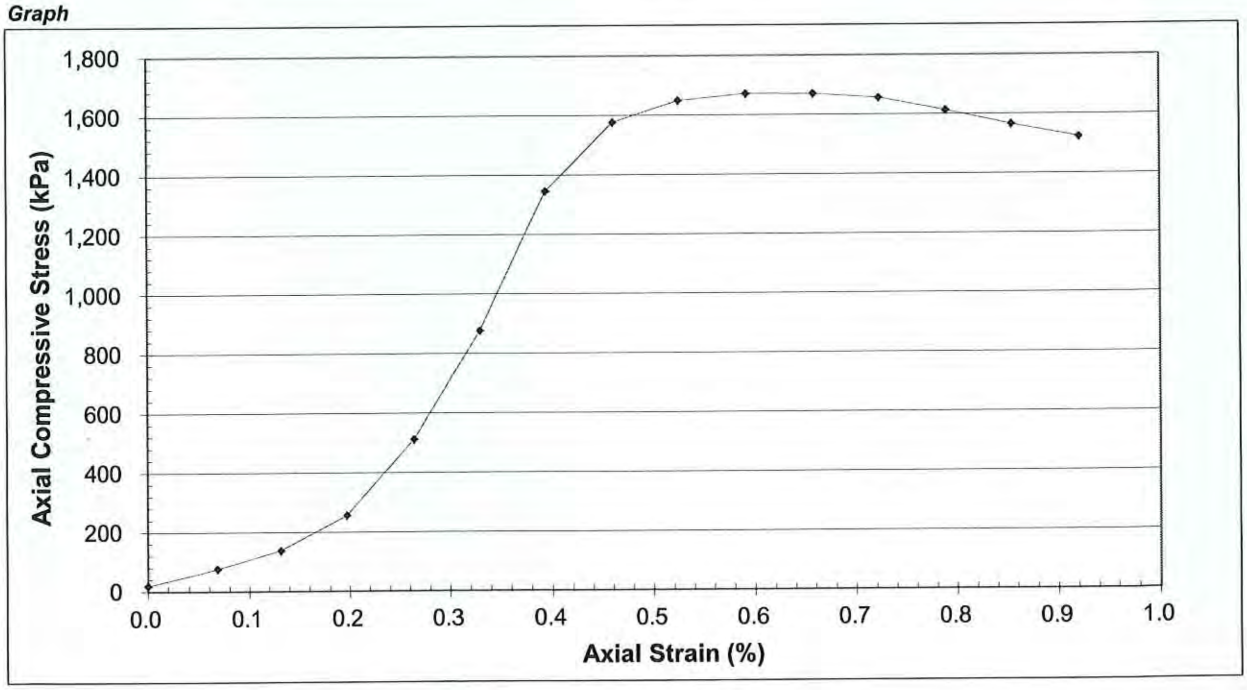
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1671	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.59	%	
Unconfined compressive strength, (q_u)	1671	kPa	

Graph



Remarks : Mixing Date : 30/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 December 2019

Date : 16 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 13/12/2019
Sample No.#: S3-SC074A 13-12-2019 S49
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.3
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4717.3	19.08
0.10	0.1	-	0.36	360	4720.5	76.26
0.20	0.1	-	0.65	650	4723.5	137.61
0.30	0.2	-	1.21	1210	4726.6	256.00
0.40	0.3	-	2.42	2420	4729.8	511.65
0.50	0.3	-	4.15	4150	4732.9	876.84
0.60	0.4	-	6.37	6370	4736.0	1345.03
0.70	0.5	-	7.47	7470	4739.1	1576.25
0.80	0.5	-	7.82	7820	4742.2	1649.02
0.90	0.6	-	7.93	7930	4745.4	1671.09
1.00	0.7	-	7.93	7930	4748.6	1669.98
1.10	0.7	-	7.87	7870	4751.7	1656.26
1.20	0.8	-	7.67	7670	4754.9	1613.09
1.30	0.9	-	7.45	7450	4758.0	1565.79
1.40	0.9	-	7.25	7250	4761.2	1522.74

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S50
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1288.6
Length of specimen	mm	151.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	710.08	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

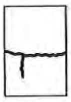
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

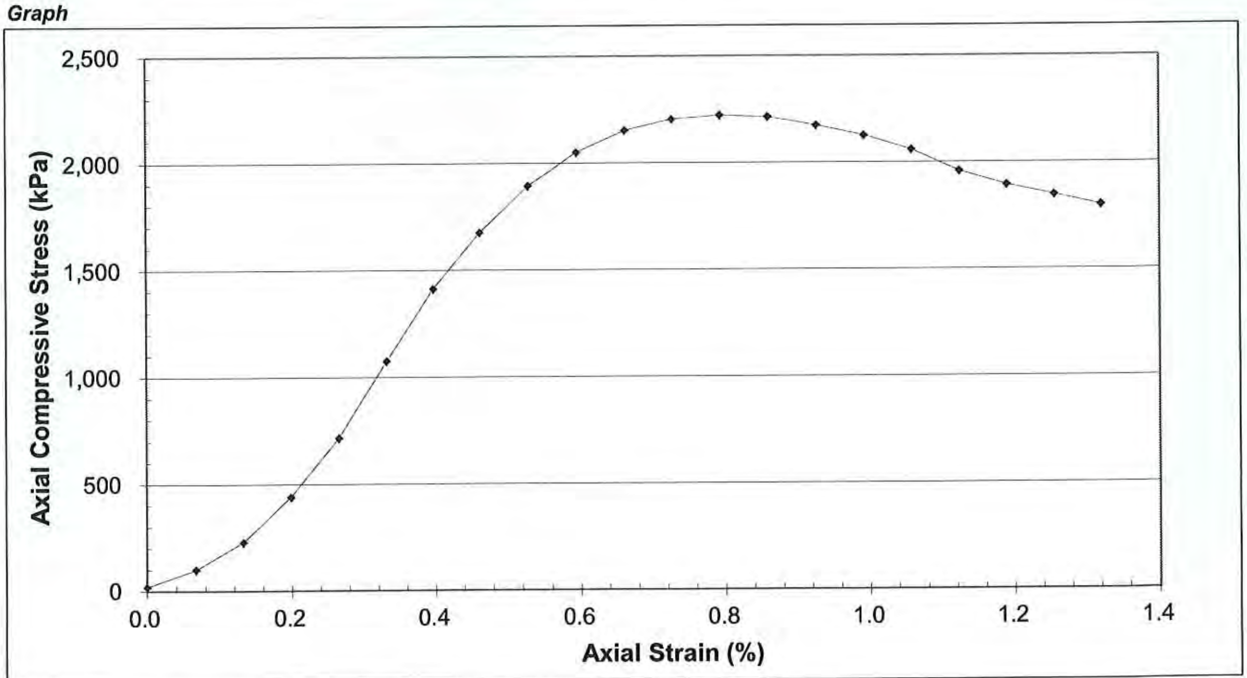
Compression Results

Maximum axial stress	2221	kPa
Axial strain at failure	0.79	%
Unconfined compressive strength, (q_u)	2221	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 31/10/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 December 2019

Date : 16 December 2019

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: S3-SC074A 13-12-2019 S50
Depth (m)[#]: -
Actual Depth (m): -
Date of Test: 13/12/2019
W.O. No.[#]: -

Sample Type[#]: PT75
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.7
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4680.8	19.23
0.10	0.1	-	0.47	470	4684.0	100.34
0.20	0.1	-	1.07	1070	4687.1	228.29
0.30	0.2	-	2.06	2060	4690.2	439.22
0.40	0.3	-	3.36	3360	4693.3	715.92
0.50	0.3	-	5.05	5050	4696.4	1075.29
0.60	0.4	-	6.64	6640	4699.5	1412.92
0.70	0.5	-	7.88	7880	4702.6	1675.68
0.80	0.5	-	8.91	8910	4705.7	1893.44
0.90	0.6	-	9.65	9650	4708.8	2049.33
1.00	0.7	-	10.14	10140	4712.0	2151.94
1.10	0.7	-	10.39	10390	4715.1	2203.56
1.20	0.8	-	10.48	10480	4718.3	$\boxed{2221.16}$
1.30	0.9	-	10.45	10450	4721.4	2213.31
1.41	0.9	-	10.27	10270	4724.6	2173.73
1.51	1.0	-	10.05	10050	4727.8	2125.75
1.61	1.1	-	9.74	9740	4730.9	2058.80
1.71	1.1	-	9.27	9270	4734.1	1958.15
1.81	1.2	-	8.97	8970	4737.2	1893.52
1.91	1.3	-	8.75	8750	4740.4	1845.85
2.00	1.3	-	8.53	8530	4743.5	1798.26

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S51
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.0	Wet mass of specimen	g	1299.8
Length of specimen	mm	153.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	713.86	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

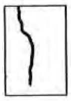
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

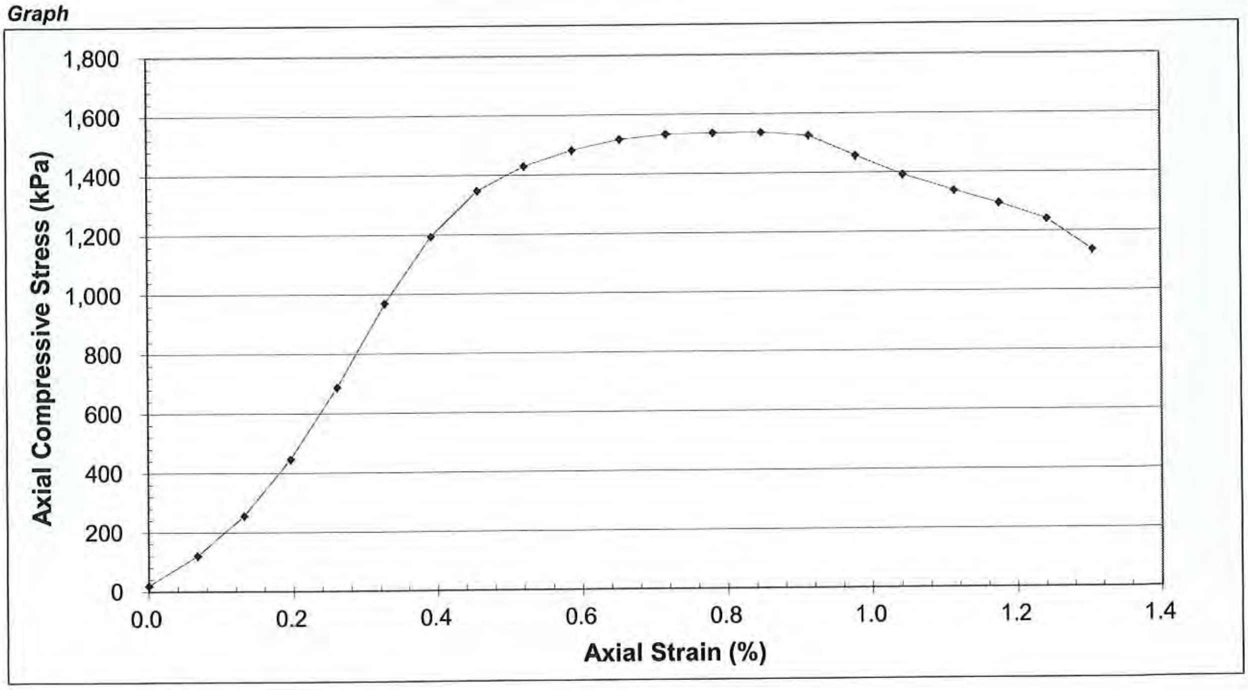
Compression Results

Maximum axial stress	1537	kPa
Axial strain at failure	0.85	%
Unconfined compressive strength, (q_u)	1537	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 01/11/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 December 2019

Certified by :
HUI King Fai

Date : 16 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 13/12/2019
Sample No.#: S3-SC074A 13-12-2019 S51
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.3
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4656.6	19.33
0.10	0.1	-	0.56	560	4659.7	120.18
0.20	0.1	-	1.19	1190	4662.8	255.21
0.30	0.2	-	2.08	2080	4665.8	445.80
0.40	0.3	-	3.21	3210	4668.8	687.54
0.50	0.3	-	4.53	4530	4671.9	969.62
0.60	0.4	-	5.58	5580	4675.0	1193.59
0.70	0.5	-	6.30	6300	4678.0	1346.72
0.80	0.5	-	6.69	6690	4681.1	1429.17
0.90	0.6	-	6.94	6940	4684.2	1481.59
1.00	0.7	-	7.11	7110	4687.3	1516.88
1.10	0.7	-	7.19	7190	4690.3	1532.96
1.20	0.8	-	7.21	7210	4693.4	1536.21
1.30	0.8	-	7.22	7220	4696.5	1537.31
1.40	0.9	-	7.17	7170	4699.6	1525.66
1.50	1.0	-	6.85	6850	4702.7	1456.62
1.60	1.0	-	6.55	6550	4705.7	1391.92
1.71	1.1	-	6.30	6300	4709.1	1337.84
1.80	1.2	-	6.10	6100	4712.0	1294.55
1.90	1.2	-	5.85	5850	4715.2	1240.67
2.00	1.3	-	5.36	5360	4718.2	1136.02

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S52
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1284.9
Length of specimen	mm	151.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	705.44	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

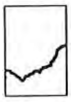
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

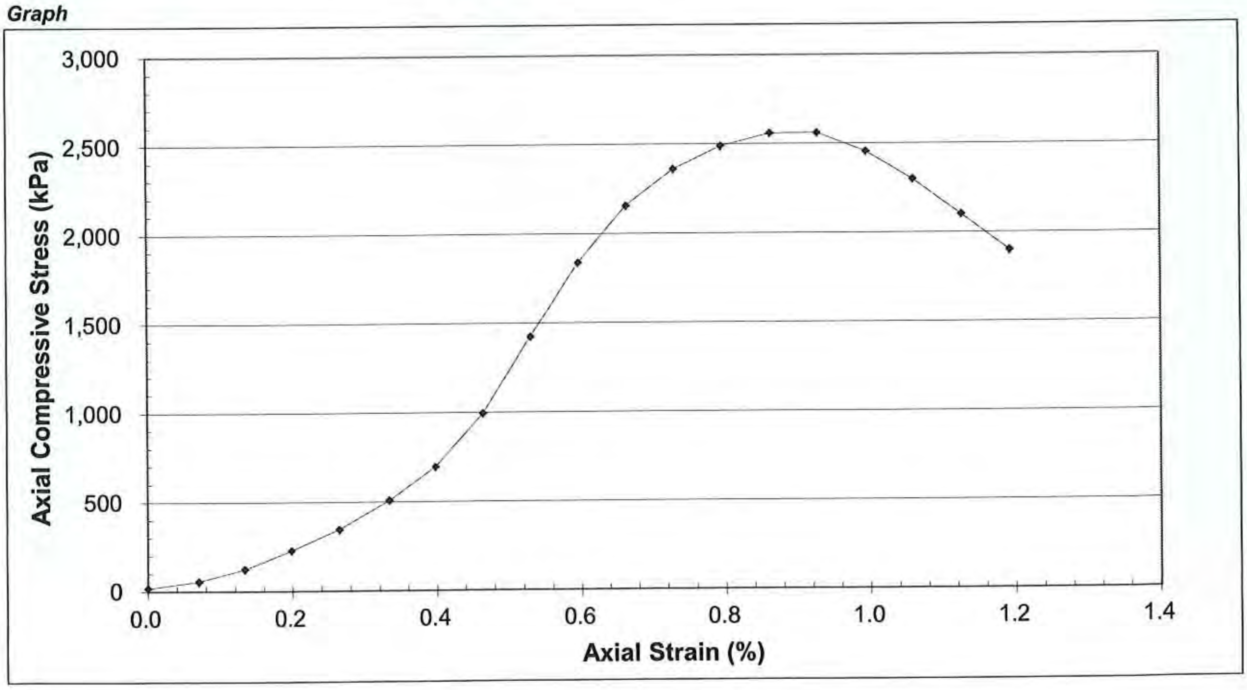
Compression Results

Maximum axial stress	2561	kPa
Axial strain at failure	0.93	%
Unconfined compressive strength, (q_u)	2561	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 01/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 13 December 2019

Date : 16 December 2019

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 13/12/2019
Sample No.#: S3-SC074A 13-12-2019 S52
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.1
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4668.7	17.14
0.11	0.1	-	0.26	260	4672.0	55.65
0.20	0.1	-	0.58	580	4674.9	124.07
0.30	0.2	-	1.07	1070	4678.0	228.73
0.40	0.3	-	1.62	1620	4681.1	346.07
0.50	0.3	-	2.38	2380	4684.4	508.07
0.60	0.4	-	3.26	3260	4687.4	695.49
0.70	0.5	-	4.66	4660	4690.5	993.50
0.80	0.5	-	6.68	6680	4693.6	1423.21
0.90	0.6	-	8.63	8630	4696.7	1837.45
1.00	0.7	-	10.13	10130	4699.9	2155.35
1.10	0.7	-	11.10	11100	4703.0	2360.18
1.20	0.8	-	11.71	11710	4706.1	2488.24
1.30	0.9	-	12.05	12050	4709.4	2558.73
1.40	0.9	-	12.07	12070	4712.5	$\boxed{2561.30}$
1.50	1.0	-	11.58	11580	4715.7	2455.64
1.60	1.1	-	10.85	10850	4718.7	2299.35
1.70	1.1	-	9.92	9920	4721.9	2100.84
1.80	1.2	-	8.97	8970	4725.1	1898.38

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S53
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1297.5
Length of specimen	mm	152.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	715.23	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

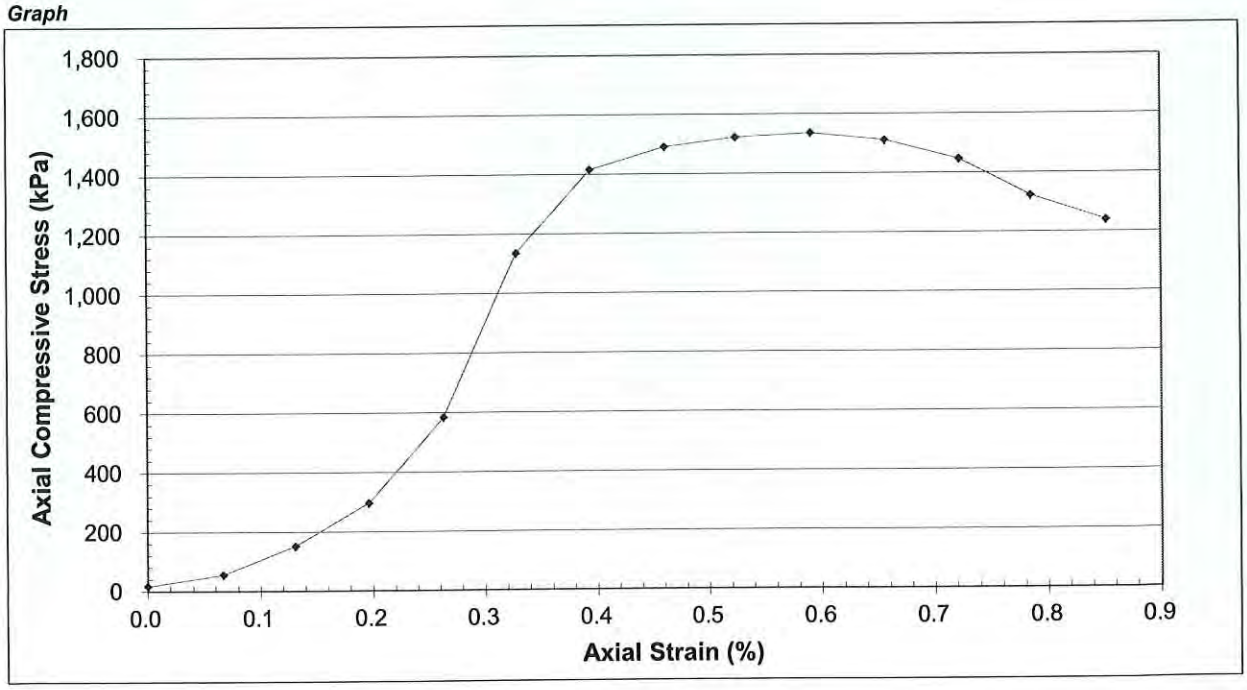
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1535	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.59	%	
Unconfined compressive strength, (q_u)	1535	kPa	

Graph



Remarks : Mixing Date : 02/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 December 2019

Certified by :
HUI King Fai

Date : 16 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 13/12/2019
Sample No.#: S3-SC074A 13-12-2019 S53
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.8
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4680.8	17.09
0.10	0.1	-	0.26	260	4684.0	55.51
0.20	0.1	-	0.71	710	4687.0	151.48
0.30	0.2	-	1.39	1390	4690.1	296.37
0.40	0.3	-	2.74	2740	4693.2	583.82
0.50	0.3	-	5.33	5330	4696.2	1134.95
0.60	0.4	-	6.65	6650	4699.4	1415.09
0.70	0.5	-	7.01	7010	4702.5	1490.69
0.80	0.5	-	7.16	7160	4705.5	1521.62
0.90	0.6	-	7.23	7230	4708.7	1535.46
1.00	0.7	-	7.12	7120	4711.8	1511.11
1.10	0.7	-	6.82	6820	4714.9	1446.47
1.20	0.8	-	6.24	6240	4717.9	1322.62
1.30	0.9	-	5.85	5850	4721.1	1239.12

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E-mail : sst@soilservices.com.hk
HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S54
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1294.0
Length of specimen	mm	152.4	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	713.36	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

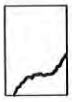
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

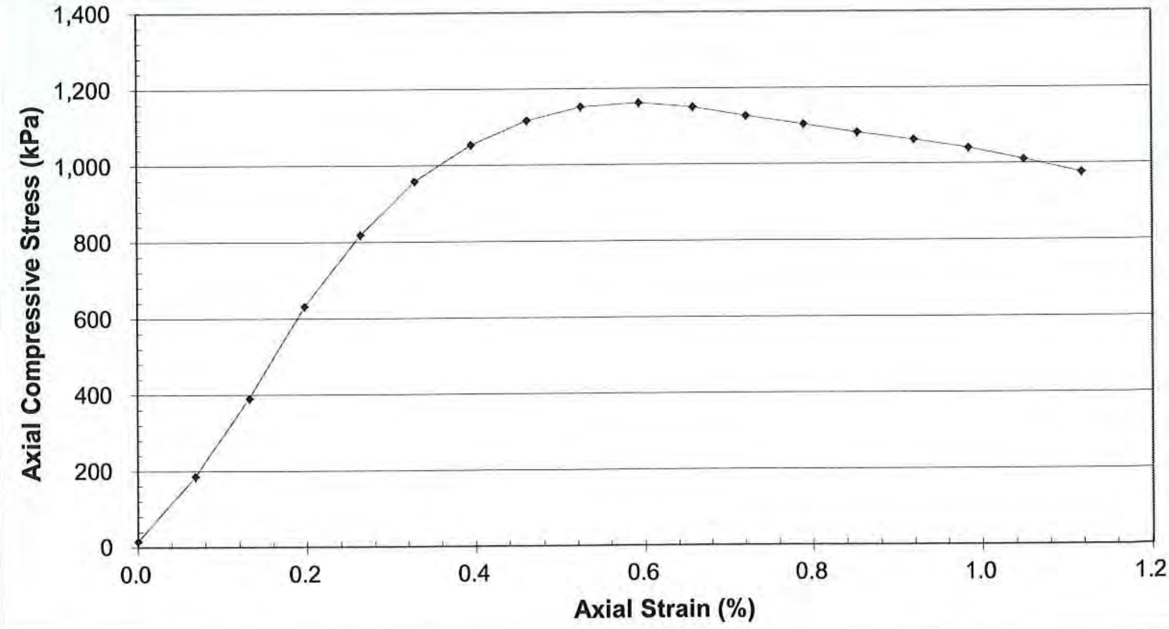
Compression Results

Maximum axial stress	1162	kPa
Axial strain at failure	0.59	%
Unconfined compressive strength, (q_u)	1162	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 04/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 December 2019

Date : 16 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S54
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.4
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4680.8	14.95
0.10	0.1	-	0.87	870	4684.0	185.74
0.20	0.1	-	1.83	1830	4687.0	390.44
0.30	0.2	-	2.96	2960	4690.1	631.12
0.40	0.3	-	3.84	3840	4693.2	818.20
0.50	0.3	-	4.50	4500	4696.3	958.20
0.60	0.4	-	4.95	4950	4699.4	1053.32
0.70	0.5	-	5.25	5250	4702.5	1116.42
0.80	0.5	-	5.42	5420	4705.5	1151.83
0.91	0.6	-	5.47	5470	4708.8	$\boxed{1161.65}$
1.00	0.7	-	5.42	5420	4711.9	1150.29
1.10	0.7	-	5.31	5310	4714.9	1126.22
1.20	0.8	-	5.21	5210	4718.1	1104.25
1.30	0.9	-	5.11	5110	4721.2	1082.36
1.40	0.9	-	5.02	5020	4724.3	1062.59
1.50	1.0	-	4.92	4920	4727.4	1040.74
1.60	1.0	-	4.78	4780	4730.5	1010.46
1.70	1.1	-	4.62	4620	4733.8	975.97

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S55
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1294.7
Length of specimen	mm	152.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	709.69	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

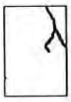
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

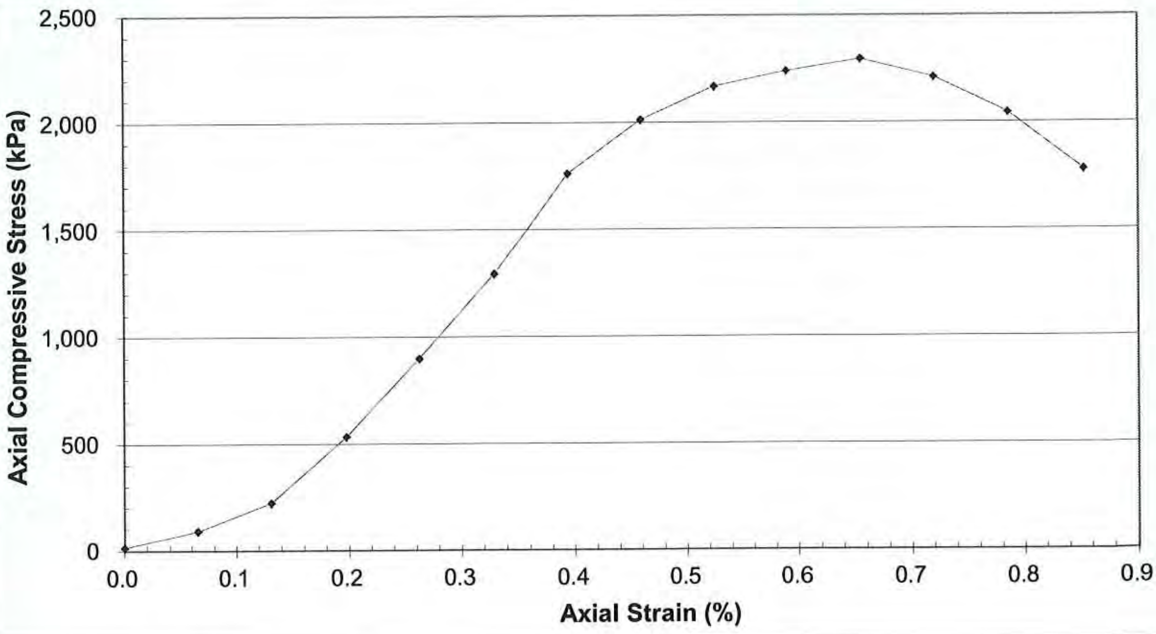
Compression Results

Maximum axial stress	2295	kPa
Axial strain at failure	0.66	%
Unconfined compressive strength, (q_u)	2295	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 08/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 December 2019

Certified by :
HUI King Fai

Date : 16 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
13-12-2019 S55
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.8
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4644.5	15.07
0.10	0.1	-	0.43	430	4647.6	92.52
0.20	0.1	-	1.04	1040	4650.6	223.63
0.30	0.2	-	2.48	2480	4653.7	532.91
0.40	0.3	-	4.18	4180	4656.8	897.62
0.50	0.3	-	6.03	6030	4659.9	1294.03
0.60	0.4	-	8.21	8210	4662.9	1760.70
0.70	0.5	-	9.39	9390	4665.9	2012.45
0.80	0.5	-	10.12	10120	4669.0	2167.47
0.90	0.6	-	10.46	10460	4672.1	2238.83
1.00	0.7	-	10.73	10730	4675.2	$\boxed{2295.11}$
1.10	0.7	-	10.34	10340	4678.2	2210.24
1.20	0.8	-	9.57	9570	4681.3	2044.30
1.30	0.9	-	8.33	8330	4684.5	1778.21

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
13-12-2019 S56
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 13/12/2019
W.O. No.#: -
Date Received: 13/12/2019

Information provided by Client

Specimen Details

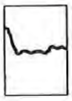
Diameter of specimen	mm	77.2	Wet mass of specimen	g	1291.5
Length of specimen	mm	153.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	716.17	Bulk density	Mg/m^3	1.80
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

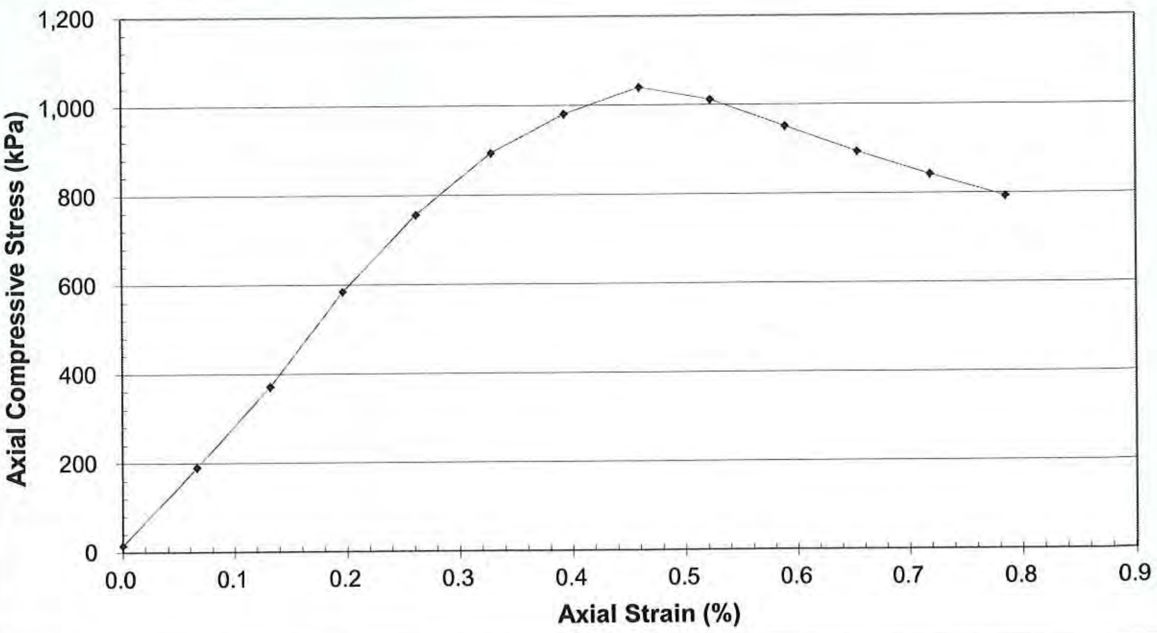
Visual Description: Olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1040	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.46	%		
Unconfined compressive strength, (q_u)	1040	kPa		

Graph



Remarks : Mixing Date : 08/11/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 December 2019

Date : 16 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S56
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.0
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4680.8	14.95
0.10	0.1	-	0.89	890	4683.9	190.01
0.20	0.1	-	1.74	1740	4687.0	371.24
0.30	0.2	-	2.74	2740	4690.1	584.21
0.40	0.3	-	3.55	3550	4693.1	756.42
0.50	0.3	-	4.20	4200	4696.3	894.32
0.60	0.4	-	4.61	4610	4699.3	980.99
0.70	0.5	-	4.89	4890	4702.5	$\boxed{1039.88}$
0.80	0.5	-	4.76	4760	4705.5	1011.59
0.90	0.6	-	4.48	4480	4708.6	951.45
1.00	0.7	-	4.21	4210	4711.7	893.53
1.10	0.7	-	3.97	3970	4714.7	842.04
1.20	0.8	-	3.74	3740	4717.9	792.72

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 13/12/2019
Sample No.#: S3-SC074A 13-12-2019 S57
Actual Depth (m): -
W.O. No.#: -
Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1307.2
Length of specimen	mm	153.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	717.57	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

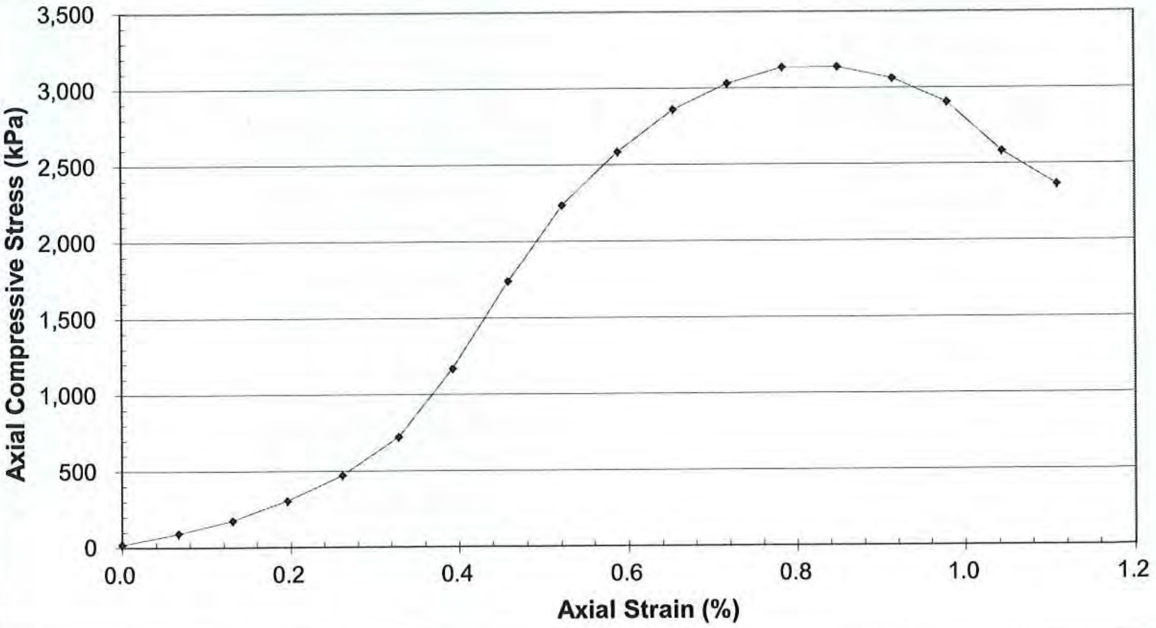
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3137	kPa
Axial strain at failure	0.85	%
Unconfined compressive strength, (q_u)	3137	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 09/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 December 2019

Date : 16 December 2019

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190221
Job No.: SHK190047
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-12-2019 S57
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.3
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4680.8	17.09
0.10	0.1	-	0.43	430	4683.9	91.80
0.20	0.1	-	0.82	820	4687.0	174.95
0.30	0.2	-	1.43	1430	4690.0	304.90
0.40	0.3	-	2.21	2210	4693.1	470.90
0.50	0.3	-	3.39	3390	4696.3	721.85
0.60	0.4	-	5.49	5490	4699.3	1168.26
0.70	0.5	-	8.18	8180	4702.4	1739.53
0.80	0.5	-	10.52	10520	4705.4	2235.73
0.90	0.6	-	12.16	12160	4708.6	2582.53
1.00	0.7	-	13.47	13470	4711.6	2858.87
1.10	0.7	-	14.28	14280	4714.7	3028.82
1.20	0.8	-	14.79	14790	4717.8	3134.93
1.30	0.8	-	14.81	14810	4720.9	$\boxed{3137.09}$
1.40	0.9	-	14.47	14470	4724.1	3063.05
1.50	1.0	-	13.73	13730	4727.2	2904.49
1.60	1.0	-	12.22	12220	4730.2	2583.37
1.70	1.1	-	11.19	11190	4733.3	2364.08

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 07-01-2020 S58
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 7/1/2020
W.O. No.#: -
Date Received: 7/1/2020

Information provided by Client

Specimen Details

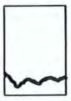
Diameter of specimen	mm	77.3	Wet mass of specimen	g	1251.5
Length of specimen	mm	151.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	712.39	Bulk density	Mg/m^3	1.76
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

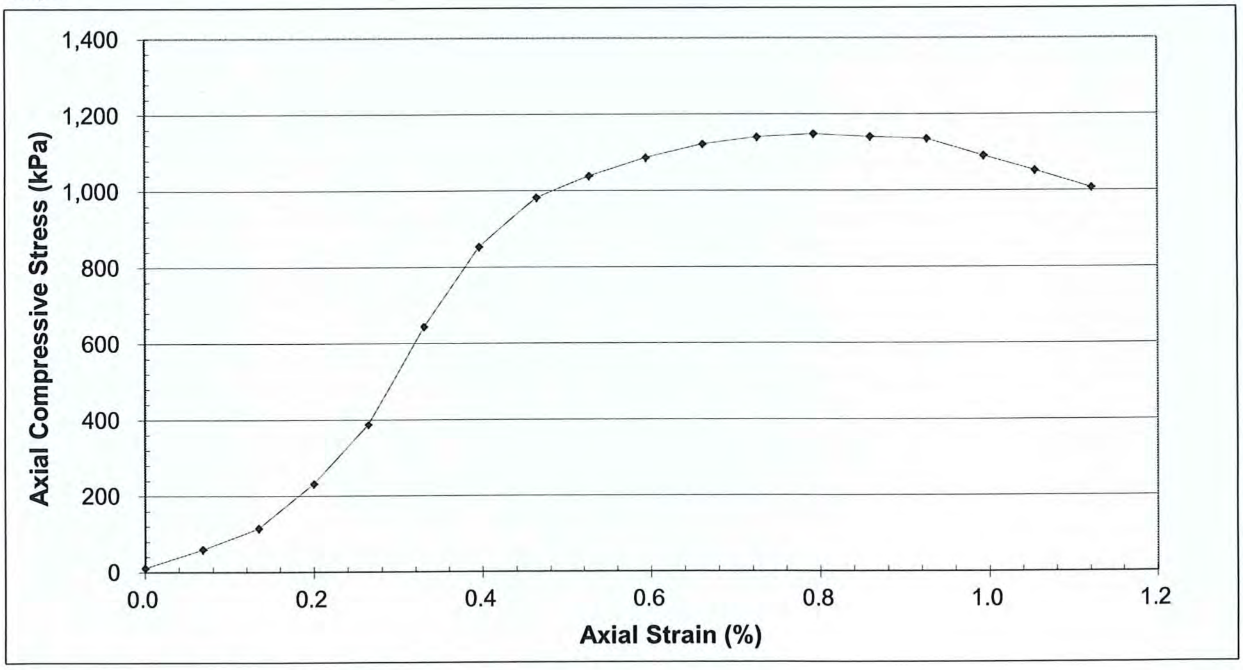
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1148	kPa	Sketch of failure conditions Inclination of shear surface 
Axial strain at failure	0.79	%	
Unconfined compressive strength, (q_u)	1148	kPa	

Graph



Remarks : Mixing Date : 9/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 7 January 2020

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
07-01-2020 S58
Depth (m)#: -
Actual Depth (m): -
Date of Test: 7/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 7/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.8
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4693.0	10.65
0.10	0.1	-	0.28	280	4696.2	59.62
0.20	0.1	-	0.54	540	4699.3	114.91
0.30	0.2	-	1.09	1090	4702.4	231.80
0.40	0.3	-	1.82	1820	4705.4	386.79
0.50	0.3	-	3.03	3030	4708.6	643.51
0.60	0.4	-	4.02	4020	4711.7	853.20
0.70	0.5	-	4.63	4630	4714.8	982.00
0.80	0.5	-	4.90	4900	4717.8	1038.61
0.90	0.6	-	5.13	5130	4721.1	1086.62
1.00	0.7	-	5.30	5300	4724.2	1121.88
1.10	0.7	-	5.39	5390	4727.3	1140.19
1.20	0.8	-	5.43	5430	4730.5	$\boxed{1147.88}$
1.31	0.9	-	5.40	5400	4733.7	1140.76
1.41	0.9	-	5.38	5380	4736.9	1135.77
1.51	1.0	-	5.17	5170	4740.1	1090.69
1.60	1.1	-	4.99	4990	4743.0	1052.08
1.70	1.1	-	4.78	4780	4746.2	1007.12

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S59
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1311.9
Length of specimen	mm	150.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	704.89	Bulk density	Mg/m^3	1.86
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

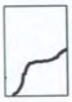
* Delete whichever is inappropriate

Visual Description: Olive grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

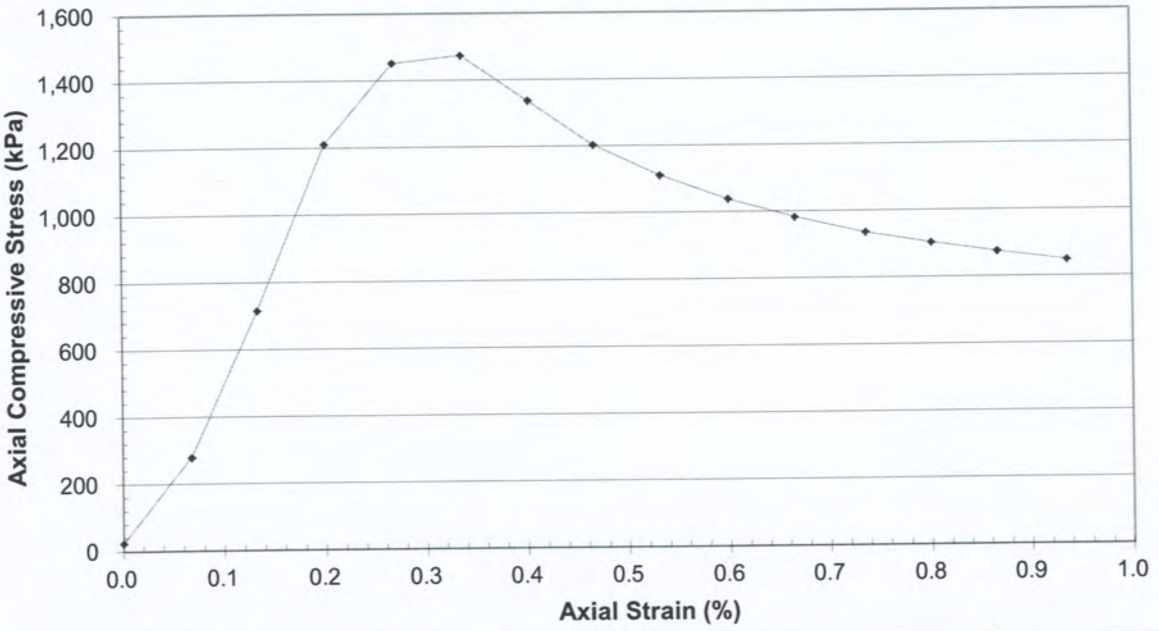
Compression Results

Maximum axial stress	1474	kPa
Axial strain at failure	0.34	%
Unconfined compressive strength, (q_u)	1474	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 11/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming
Date : 20 December 2019

Certified by :
HUI King Fai
Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 20/12/2019
Sample No.#: S3-SC074A 20-12-2019 S59
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.2
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.11	110	4693.0	23.44
0.10	0.1	-	1.31	1310	4696.2	278.95
0.20	0.1	-	3.36	3360	4699.2	715.01
0.30	0.2	-	5.69	5690	4702.4	1210.02
0.40	0.3	-	6.83	6830	4705.6	1451.46
0.51	0.3	-	6.94	6940	4708.8	1473.83
0.61	0.4	-	6.30	6300	4712.0	1337.02
0.70	0.5	-	5.67	5670	4715.0	1202.55
0.80	0.5	-	5.24	5240	4718.1	1110.61
0.90	0.6	-	4.90	4900	4721.3	1037.85
1.00	0.7	-	4.64	4640	4724.5	982.12
1.11	0.7	-	4.42	4420	4727.8	934.90
1.20	0.8	-	4.27	4270	4730.9	902.58
1.30	0.9	-	4.14	4140	4734.0	874.52
1.41	0.9	-	4.02	4020	4737.3	848.59

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S60
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1270.1
Length of specimen	mm	150.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	703.06	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

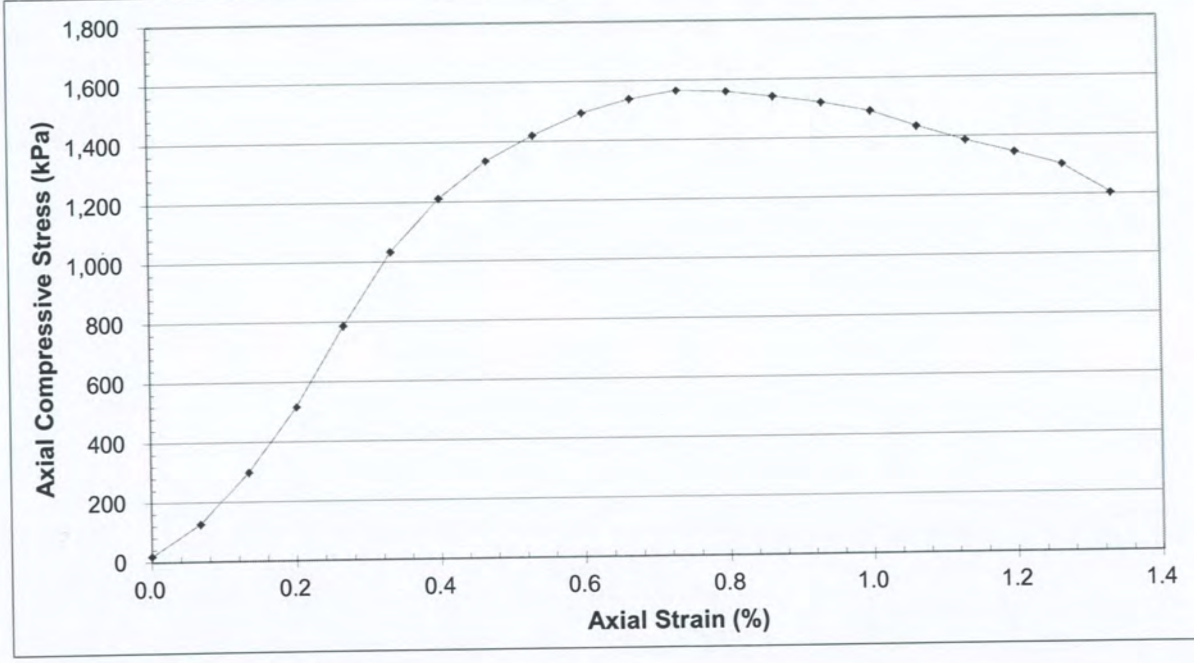
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1565	kPa
Axial strain at failure	0.73	%
Unconfined compressive strength, (q_u)	1565	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 12/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 20 December 2019

Certified by : HUI King Fai

Date : 2 January 2020

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S60
Depth (m)#: -
Actual Depth (m): -
Date of Test: 20/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.2
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4680.8	19.23
0.10	0.1	-	0.59	590	4684.0	125.96
0.20	0.1	-	1.40	1400	4687.2	298.69
0.30	0.2	-	2.42	2420	4690.3	515.96
0.40	0.3	-	3.69	3690	4693.4	786.21
0.50	0.3	-	4.85	4850	4696.5	1032.68
0.60	0.4	-	5.69	5690	4699.7	1210.71
0.70	0.5	-	6.28	6280	4702.9	1335.36
0.80	0.5	-	6.68	6680	4705.9	1419.48
0.90	0.6	-	7.03	7030	4709.2	1492.83
1.00	0.7	-	7.25	7250	4712.3	1538.53
1.10	0.7	-	7.38	7380	4715.4	1565.09
1.20	0.8	-	7.36	7360	4718.6	1559.77
1.30	0.9	-	7.28	7280	4721.7	1541.80
1.40	0.9	-	7.18	7180	4725.0	1519.59
1.50	1.0	-	7.04	7040	4728.2	1488.94
1.60	1.1	-	6.79	6790	4731.3	1435.13
1.70	1.1	-	6.56	6560	4734.5	1385.57
1.80	1.2	-	6.37	6370	4737.8	1344.52
1.90	1.3	-	6.17	6170	4740.9	1301.45
2.00	1.3	-	5.71	5710	4744.1	1203.61

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S61
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.5	Wet mass of specimen	g	1261.2
Length of specimen	mm	149.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	707.12	Bulk density	Mg/m^3	1.78
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

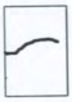
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

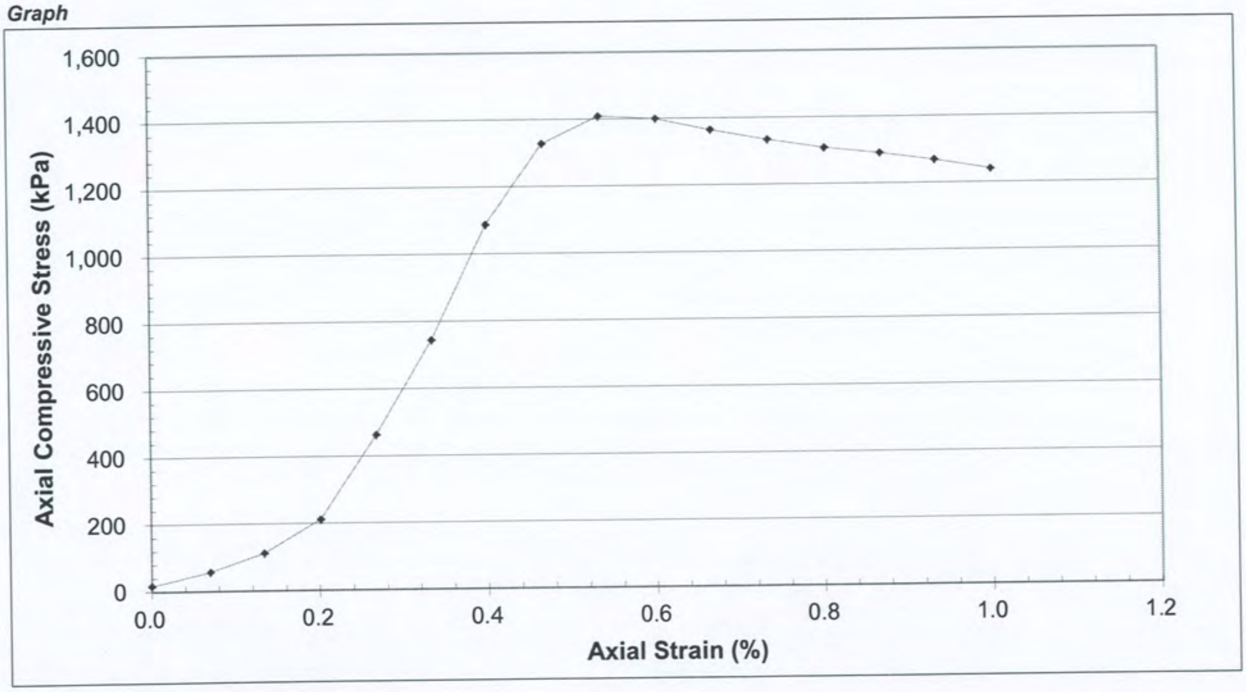
Compression Results

Maximum axial stress	1408	kPa
Axial strain at failure	0.53	%
Unconfined compressive strength, (q_u)	1408	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 12/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 20 December 2019

Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S61
Depth (m)#: -
Actual Depth (m): -
Date of Test: 20/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	149.9
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.08*	80	4717.3	16.96
0.10	0.1	-	*0.27*	270	4720.6	57.20
0.20	0.1	-	*0.53*	530	4723.6	112.20
0.30	0.2	-	*1.00*	1000	4726.8	211.56
0.40	0.3	-	*2.19*	2190	4730.0	463.01
0.50	0.3	-	*3.52*	3520	4733.1	743.70
0.60	0.4	-	*5.15*	5150	4736.3	1087.36
0.70	0.5	-	*6.29*	6290	4739.5	1327.15
0.80	0.5	-	*6.68*	6680	4742.6	$\boxed{1408.50}$
0.90	0.6	-	*6.64*	6640	4745.9	1399.10
1.00	0.7	-	*6.48*	6480	4749.0	1364.49
1.10	0.7	-	*6.34*	6340	4752.3	1334.10
1.21	0.8	-	*6.22*	6220	4755.5	1307.95
1.30	0.9	-	*6.14*	6140	4758.7	1290.27
1.40	0.9	-	*6.04*	6040	4761.8	1268.43
1.50	1.0	-	*5.91*	5910	4765.0	1240.29

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S62
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.5	Wet mass of specimen	g	1282.9
Length of specimen	mm	150.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	711.84	Bulk density	Mg/m^3	1.80
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

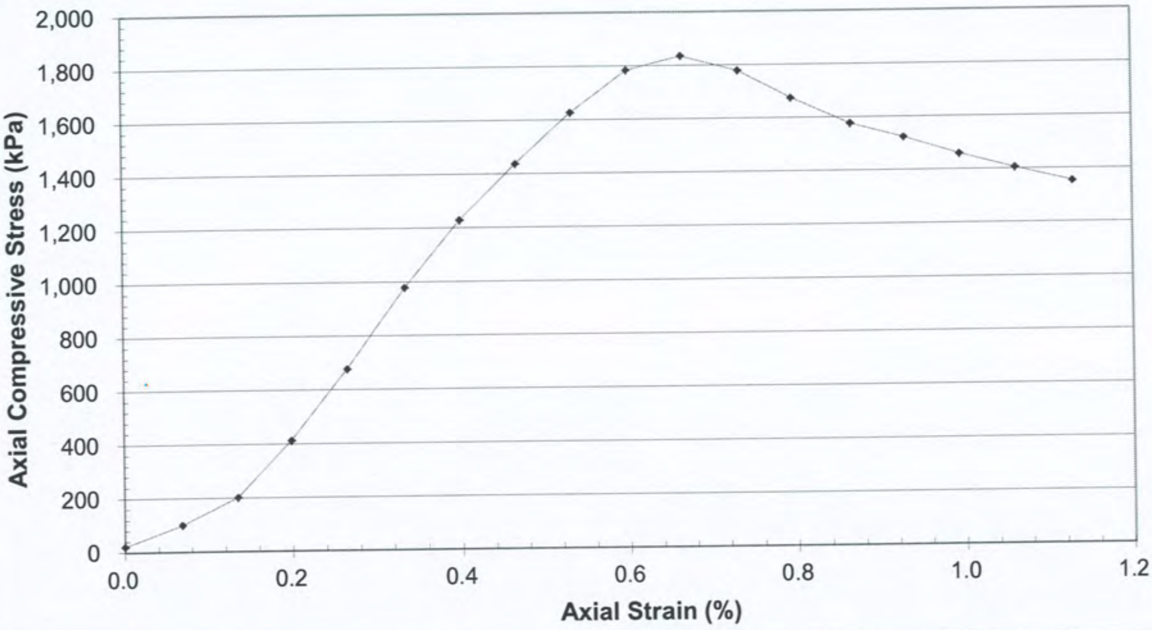
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1834	kPa
Axial strain at failure	0.66	%
Unconfined compressive strength, (q_u)	1834	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 13/11/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 20 December 2019

Certified by :
HUI King Fai

Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S62
Depth (m)#: -
Actual Depth (m): -
Date of Test: 20/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.9
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.10	100	4717.3	21.20
0.10	0.1	-	0.47	470	4720.5	99.57
0.20	0.1	-	0.95	950	4723.7	201.12
0.30	0.2	-	1.95	1950	4726.7	412.55
0.40	0.3	-	3.20	3200	4729.8	676.56
0.50	0.3	-	4.63	4630	4733.1	978.22
0.60	0.4	-	5.82	5820	4736.2	1228.84
0.70	0.5	-	6.81	6810	4739.4	1436.90
0.80	0.5	-	7.71	7710	4742.5	1625.71
0.90	0.6	-	8.46	8460	4745.7	1782.66
1.00	0.7	-	8.71	8710	4748.8	$\boxed{1834.14}$
1.11	0.7	-	8.45	8450	4752.1	1778.16
1.20	0.8	-	7.96	7960	4755.1	1673.99
1.31	0.9	-	7.50	7500	4758.4	1576.14
1.40	0.9	-	7.25	7250	4761.5	1522.63
1.50	1.0	-	6.95	6950	4764.7	1458.65
1.60	1.1	-	6.70	6700	4767.9	1405.24
1.70	1.1	-	6.46	6460	4771.2	1353.96

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S63
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

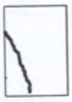
Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1285.6
Length of specimen	mm	150.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	702.60	Bulk density	Mg/m^3	1.83
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

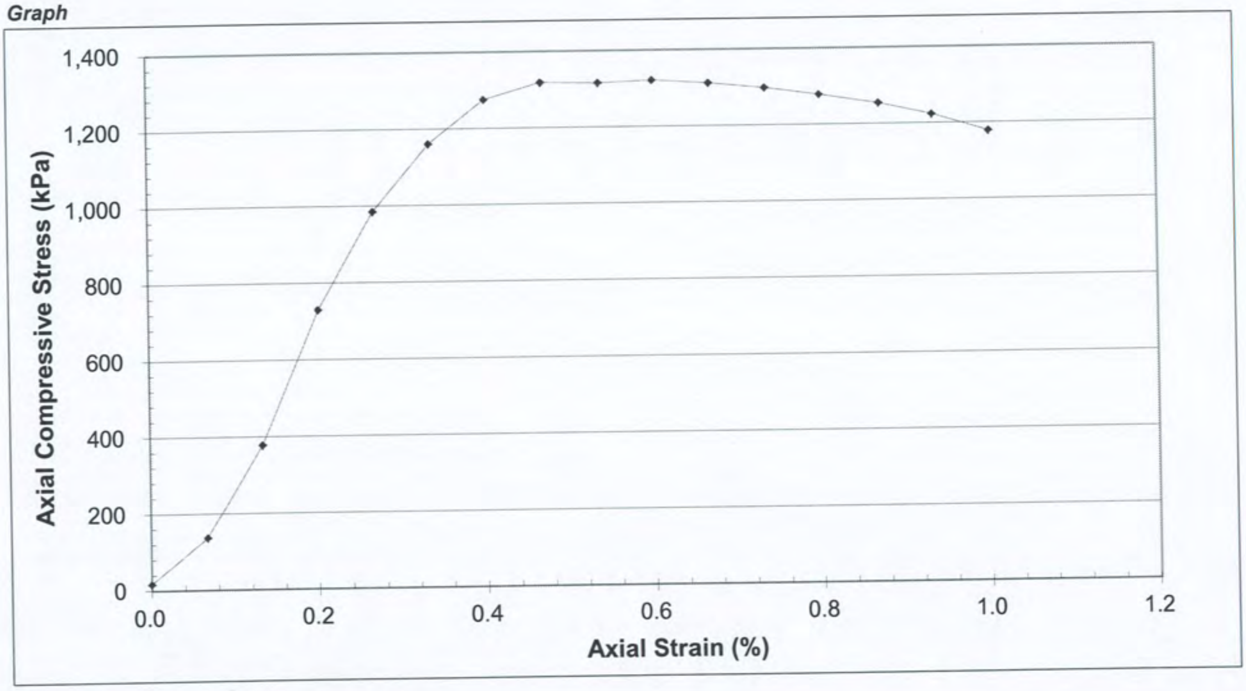
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1321	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.60	%	
Unconfined compressive strength, (q_u)	1321	kPa	

Graph



Remarks : Mixing Date : 13/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 20 December 2019

Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S63
Depth (m)#: -
Actual Depth (m): -
Date of Test: 20/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.1
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.6%.
Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.
Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4680.8	17.09
0.10	0.1	-	0.64	640	4684.0	136.64
0.20	0.1	-	1.77	1770	4687.1	377.63
0.30	0.2	-	3.42	3420	4690.3	729.17
0.40	0.3	-	4.62	4620	4693.4	984.37
0.50	0.3	-	5.45	5450	4696.5	1160.43
0.60	0.4	-	5.99	5990	4699.7	1274.55
0.70	0.5	-	6.20	6200	4702.9	1318.34
0.81	0.5	-	6.19	6190	4706.1	1315.32
0.90	0.6	-	6.22	6220	4709.1	1320.83
1.00	0.7	-	6.18	6180	4712.3	1311.46
1.10	0.7	-	6.12	6120	4715.5	1297.86
1.20	0.8	-	6.03	6030	4718.6	1277.93
1.31	0.9	-	5.92	5920	4721.9	1253.72
1.40	0.9	-	5.78	5780	4724.9	1223.29
1.50	1.0	-	5.57	5570	4728.2	1178.05

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S64
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

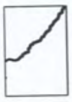
Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1309.1
Length of specimen	mm	151.3	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	702.72	Bulk density	Mg/m^3	1.86
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

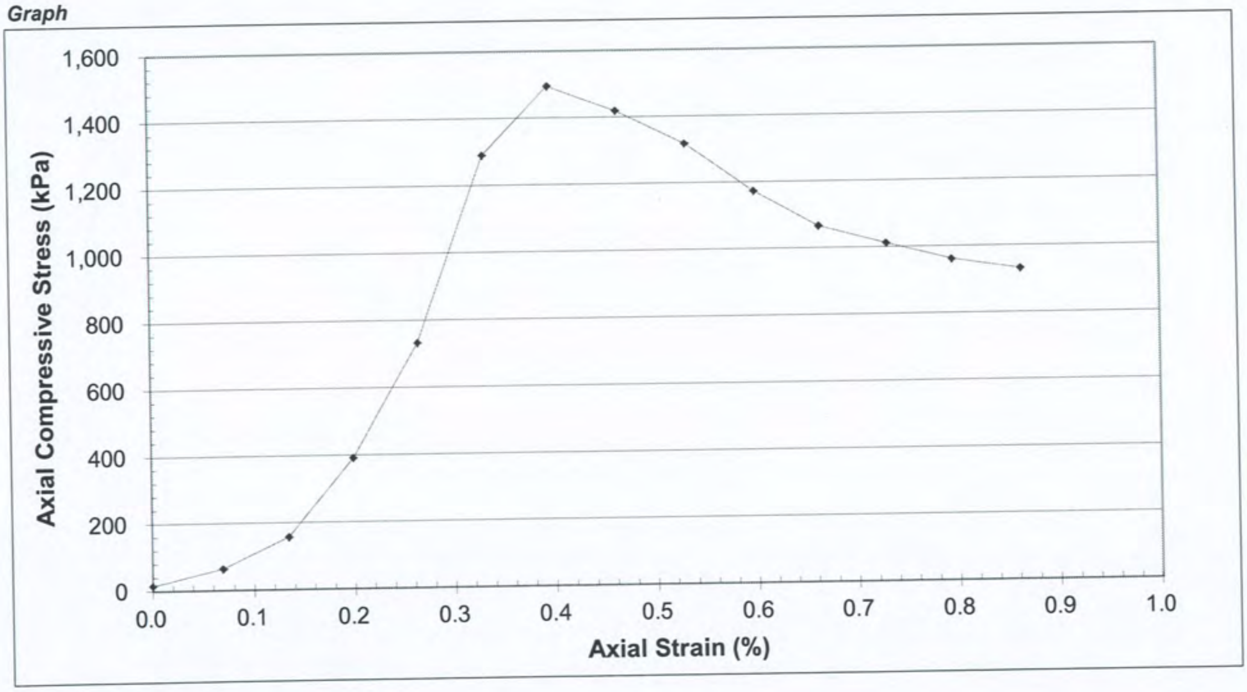
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1495	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.40	%	
Unconfined compressive strength, (q_u)	1495	kPa	

Graph



Remarks : Mixing Date : 18/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 20 December 2019

Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client$^{\#}$: Sang Hing - Kuly Joint Venture
Project$^{\#}$: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.$^{\#}$: -
Sample No.$^{\#}$: S3-SC074A 20-12-2019 S64
Depth (m)$^{\#}$: -
Actual Depth (m): -
Date of Test: 20/12/2019
W.O. No.$^{\#}$: -

Sample Type$^{\#}$: PT75
Sample Origin$^{\#}$: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

$^{\#}$ Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.3
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in *Italic*

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4644.5	15.07
0.11	0.1	-	0.30	300	4647.8	64.55
0.20	0.1	-	0.73	730	4650.8	156.96
0.30	0.2	-	1.82	1820	4653.8	391.08
0.40	0.3	-	3.41	3410	4656.8	732.25
0.50	0.3	-	6.01	6010	4660.0	1289.71
0.60	0.4	-	6.97	6970	4663.0	$\boxed{1494.74}$
0.70	0.5	-	6.62	6620	4666.2	1418.73
0.80	0.5	-	6.15	6150	4669.4	1317.10
0.91	0.6	-	5.48	5480	4672.5	1172.82
1.00	0.7	-	4.98	4980	4675.6	1065.11
1.11	0.7	-	4.73	4730	4678.7	1010.96
1.20	0.8	-	4.50	4500	4681.8	961.18
1.31	0.9	-	4.36	4360	4685.0	930.63

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S65
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1304.1
Length of specimen	mm	149.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	701.19	Bulk density	Mg/m^3	1.86
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

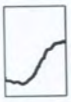
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

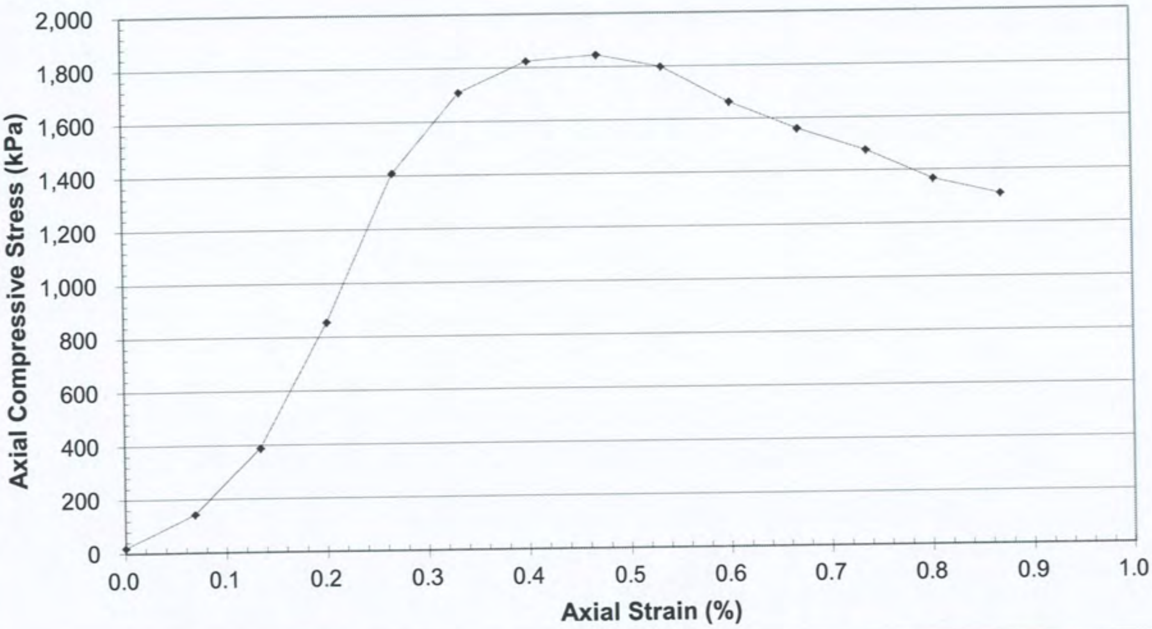
Compression Results

Maximum axial stress	1844	kPa
Axial strain at failure	0.47	%
Unconfined compressive strength, (q_u)	1844	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 18/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 20 December 2019

Certified by :
HUI King Fai

Date : 2 January 2020

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S65
Depth (m)#: -
Actual Depth (m): -
Date of Test: 20/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	149.8
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.09*	90	4680.8	19.23
0.10	0.1	-	*0.67*	670	4684.1	143.04
0.20	0.1	-	*1.82*	1820	4687.1	388.30
0.30	0.2	-	*4.01*	4010	4690.3	854.96
0.40	0.3	-	*6.61*	6610	4693.4	1408.37
0.50	0.3	-	*8.02*	8020	4696.6	1707.63
0.60	0.4	-	*8.57*	8570	4699.7	1823.51
0.71	0.5	-	*8.67*	8670	4703.0	$\boxed{1843.51}$
0.80	0.5	-	*8.46*	8460	4706.0	1797.70
0.90	0.6	-	*7.83*	7830	4709.2	1662.70
1.00	0.7	-	*7.35*	7350	4712.4	1559.71
1.11	0.7	-	*6.96*	6960	4715.6	1475.94
1.20	0.8	-	*6.45*	6450	4718.8	1366.88
1.30	0.9	-	*6.18*	6180	4721.9	1308.79

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
20-12-2019 S66
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.7	Wet mass of specimen	g	1293.1
Length of specimen	mm	151.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4620.4	Moisture content	%	-
Volume of specimen	cm^3	701.84	Bulk density	Mg/m^3	1.84
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

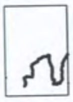
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

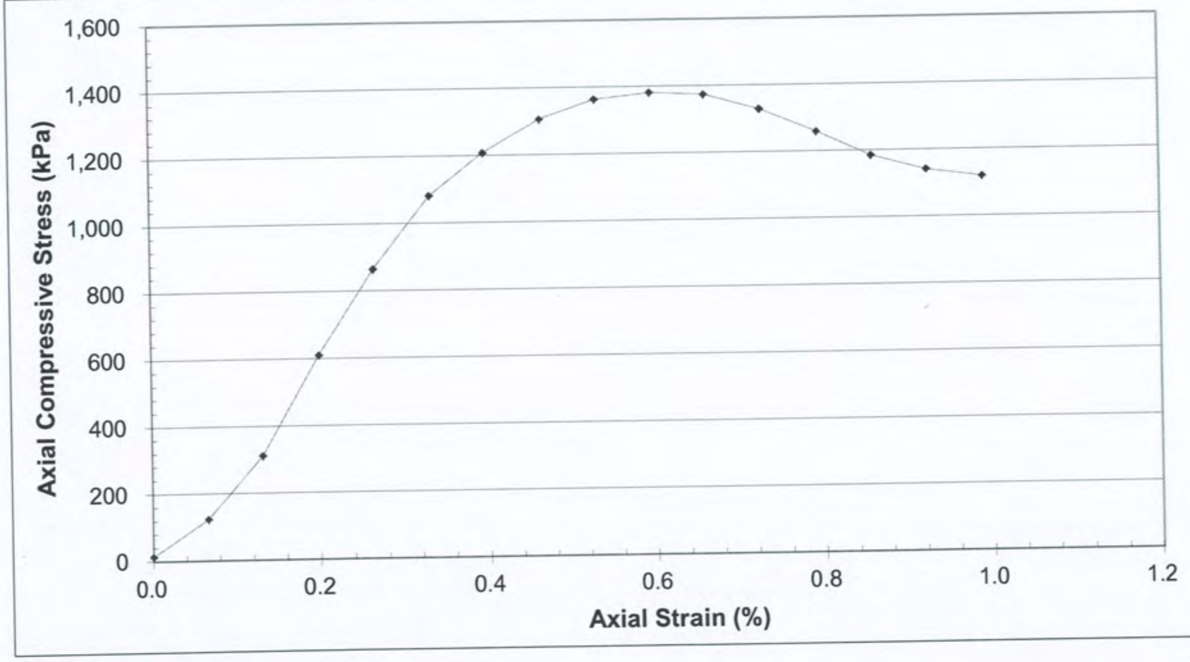
Compression Results

Maximum axial stress	1381	kPa
Axial strain at failure	0.60	%
Unconfined compressive strength, (q_u)	1381	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 19/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 20 December 2019

Certified by : HUI King Fai

Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S66
Depth (m)#: -
Actual Depth (m): -
Date of Test: 20/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.9
		Original area (A_o)	mm^2	4620.4

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4620.4	12.99
0.10	0.1	-	0.57	570	4623.5	123.28
0.20	0.1	-	1.44	1440	4626.5	311.25
0.30	0.2	-	2.82	2820	4629.6	609.12
0.40	0.3	-	4.00	4000	4632.6	863.44
0.50	0.3	-	5.01	5010	4635.8	1080.73
0.60	0.4	-	5.60	5600	4638.8	1207.22
0.70	0.5	-	6.06	6060	4641.9	1305.49
0.80	0.5	-	6.33	6330	4645.0	1362.76
0.91	0.6	-	6.42	6420	4648.1	1381.21
1.00	0.7	-	6.39	6390	4651.1	1373.87
1.10	0.7	-	6.18	6180	4654.2	1327.84
1.21	0.8	-	5.86	5860	4657.4	1258.22
1.30	0.9	-	5.52	5520	4660.4	1184.45
1.40	0.9	-	5.32	5320	4663.5	1140.79
1.50	1.0	-	5.22	5220	4666.6	1118.59

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HOKLAS 264
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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
20-12-2019 S67
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 20/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.4	Wet mass of specimen	g	1276.0
Length of specimen	mm	150.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4705.1	Moisture content	%	-
Volume of specimen	cm^3	705.77	Bulk density	Mg/m^3	1.81
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

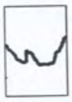
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

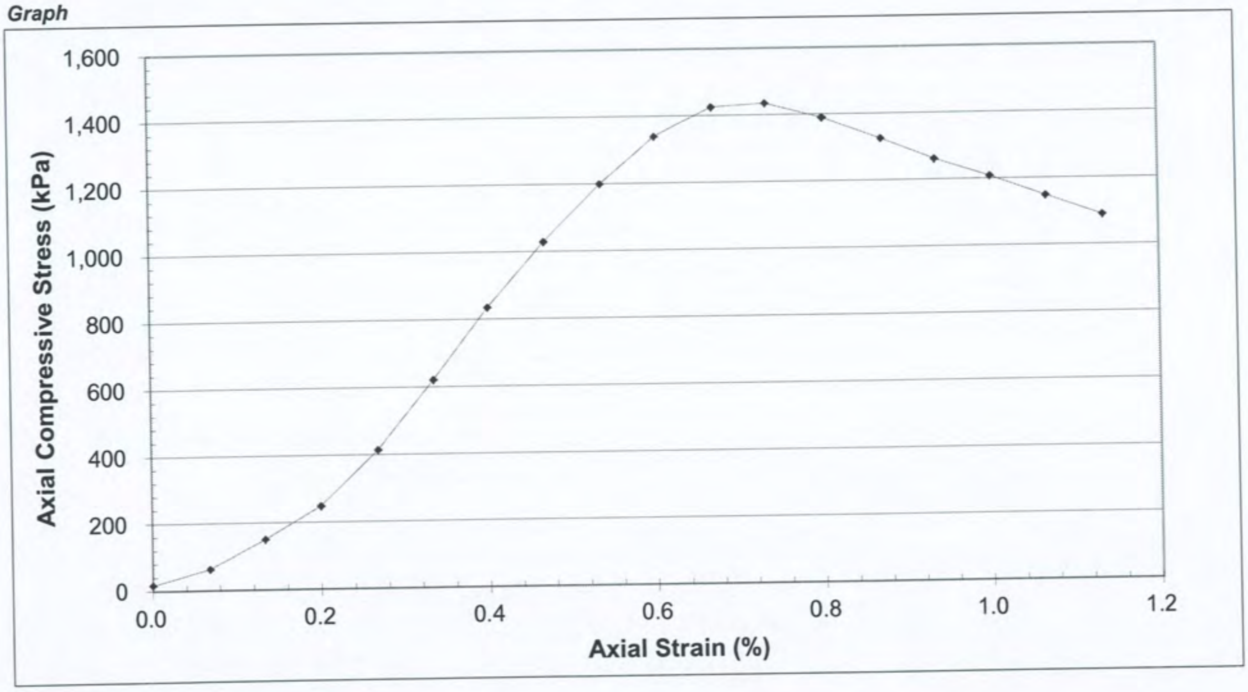
Compression Results

Maximum axial stress	1435	kPa
Axial strain at failure	0.73	%
Unconfined compressive strength, (q_u)	1435	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 19/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 20 December 2019

Certified by :
HUI King Fai

Date : 2 January 2020

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Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 20/12/2019
Sample No.#: S3-SC074A 20-12-2019 S67
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.0
		Original area (A_o)	mm^2	4705.1

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.08*	80	4705.1	17.00
0.10	0.1	-	*0.30*	300	4708.3	63.72
0.20	0.1	-	*0.71*	710	4711.4	150.70
0.30	0.2	-	*1.17*	1170	4714.6	248.17
0.40	0.3	-	*1.95*	1950	4717.8	413.33
0.50	0.3	-	*2.93*	2930	4720.9	620.64
0.60	0.4	-	*3.94*	3940	4724.0	834.03
0.70	0.5	-	*4.86*	4860	4727.3	1028.08
0.80	0.5	-	*5.67*	5670	4730.5	1198.61
0.90	0.6	-	*6.34*	6340	4733.6	1339.36
1.00	0.7	-	*6.75*	6750	4736.8	1425.00
1.10	0.7	-	*6.80*	6800	4739.9	$\boxed{1434.63}$
1.20	0.8	-	*6.59*	6590	4743.1	1389.37
1.31	0.9	-	*6.29*	6290	4746.5	1325.20
1.40	0.9	-	*5.99*	5990	4749.5	1261.18
1.50	1.0	-	*5.74*	5740	4752.7	1207.74
1.60	1.1	-	*5.46*	5460	4755.9	1148.06
1.70	1.1	-	*5.18*	5180	4759.1	1088.44

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
07-01-2020 S68
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 7/1/2020
W.O. No.#: -
Date Received: 7/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1274.2
Length of specimen	mm	152.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	710.11	Bulk density	Mg/m^3	1.79
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

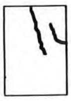
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

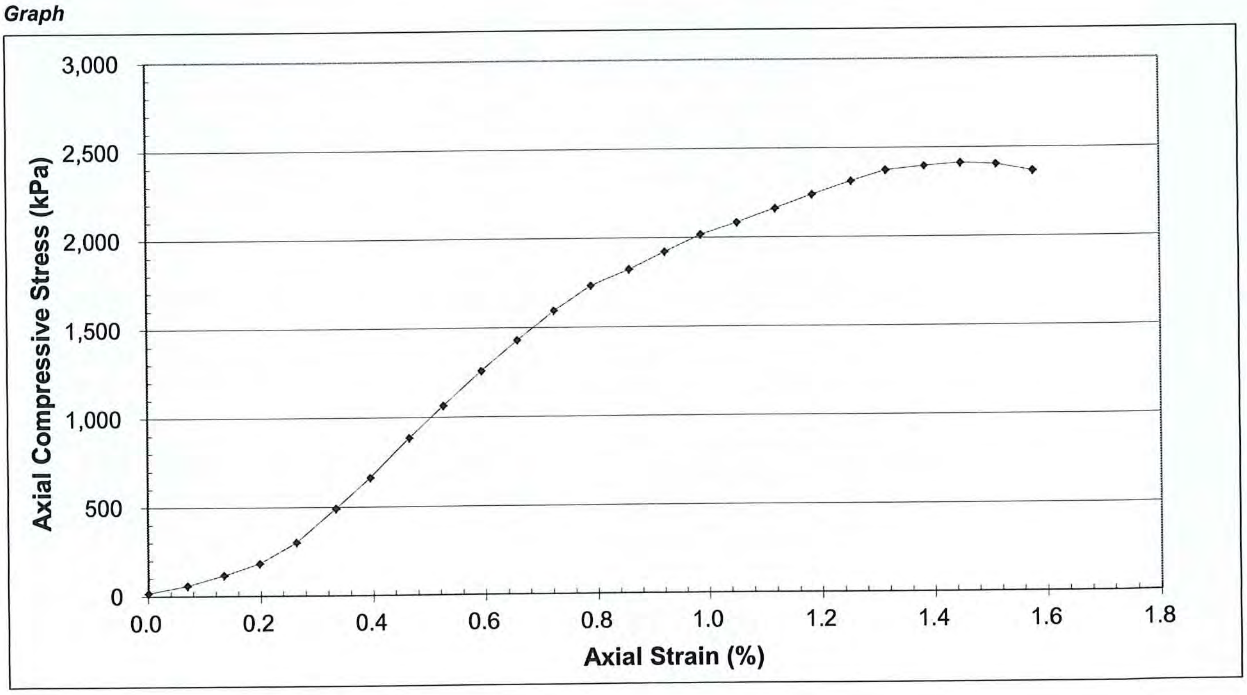
Compression Results

Maximum axial stress	2413	kPa
Axial strain at failure	1.4	%
Unconfined compressive strength, (q_u)	2413	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 20/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 7 January 2020

Certified by :
HUI King Fai

Date : 9 January 2020

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Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 07-01-2020 S68
Depth (m)#: -
Actual Depth (m): -
Date of Test: 7/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 7/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.1
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.6% of axial strain and the peak axial compressive stress is reached at 1.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4668.7	17.14
0.11	0.1	-	0.28	280	4672.0	59.93
0.20	0.1	-	0.55	550	4675.0	117.65
0.30	0.2	-	0.86	860	4678.0	183.84
0.40	0.3	-	1.41	1410	4681.1	301.21
0.51	0.3	-	2.30	2300	4684.3	491.00
0.60	0.4	-	3.11	3110	4687.2	663.50
0.71	0.5	-	4.15	4150	4690.5	884.76
0.80	0.5	-	5.00	5000	4693.4	1065.32
0.90	0.6	-	5.91	5910	4696.6	1258.35
1.00	0.7	-	6.72	6720	4699.7	1429.89
1.10	0.7	-	7.50	7500	4702.7	1594.82
1.20	0.8	-	8.16	8160	4705.9	1734.00
1.31	0.9	-	8.59	8590	4709.1	1824.12
1.40	0.9	-	9.05	9050	4712.2	1920.55
1.50	1.0	-	9.51	9510	4715.3	2016.84
1.60	1.1	-	9.83	9830	4718.4	2083.34
1.70	1.1	-	10.21	10210	4721.6	2162.41
1.80	1.2	-	10.58	10580	4724.7	2239.29
1.91	1.3	-	10.94	10940	4728.1	2313.84
2.00	1.3	-	11.23	11230	4731.0	2373.71
2.11	1.4	-	11.35	11350	4734.3	2397.41
2.21	1.4	-	11.43	11430	4737.4	$\boxed{2412.71}$
2.30	1.5	-	11.40	11400	4740.5	2404.82
2.40	1.6	-	11.23	11230	4743.6	2367.41

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HOKLAS 264 TEST

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Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 07-01-2020 S69
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 7/1/2020
W.O. No.#: -
Date Received: 7/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1278.3
Length of specimen	mm	153.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	716.17	Bulk density	Mg/m^3	1.78
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

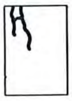
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

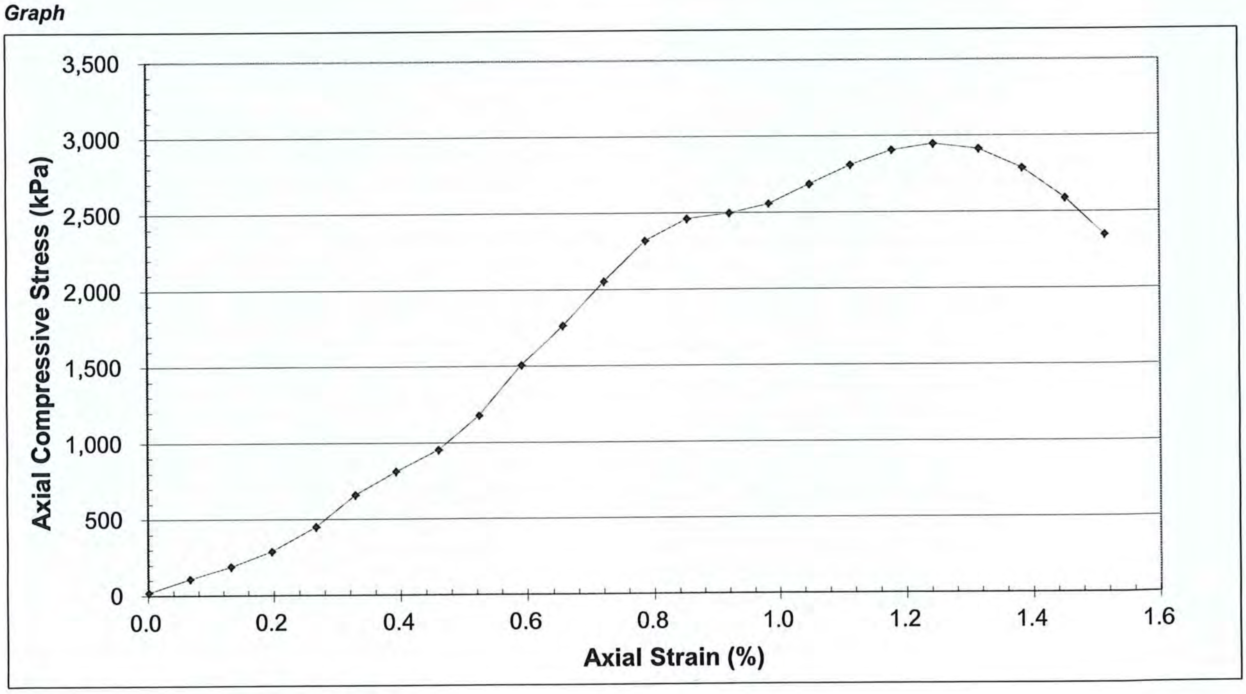
Compression Results

Maximum axial stress	2947	kPa
Axial strain at failure	1.2	%
Unconfined compressive strength, (q_u)	2947	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 20/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 7 January 2020

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 7/1/2020
Sample No.#: S3-SC074A 07-01-2020 S69
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 7/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	153.0
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.5% of axial strain and the peak axial compressive stress is reached at 1.2%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4680.9	19.23
0.10	0.1	-	0.51	510	4683.9	108.88
0.20	0.1	-	0.89	890	4687.0	189.89
0.30	0.2	-	1.36	1360	4690.1	289.97
0.41	0.3	-	2.11	2110	4693.3	449.57
0.50	0.3	-	3.09	3090	4696.3	657.97
0.60	0.4	-	3.82	3820	4699.3	812.89
0.70	0.5	-	4.49	4490	4702.5	954.81
0.80	0.5	-	5.54	5540	4705.5	1177.34
0.91	0.6	-	7.09	7090	4708.7	1505.72
1.00	0.7	-	8.31	8310	4711.8	1763.67
1.10	0.7	-	9.68	9680	4714.9	2053.08
1.21	0.8	-	10.94	10940	4718.0	2318.78
1.31	0.9	-	11.62	11620	4721.1	2461.27
1.41	0.9	-	11.80	11800	4724.4	2497.68
1.51	1.0	-	12.09	12090	4727.4	2557.44
1.61	1.0	-	12.70	12700	4730.5	2684.70
1.71	1.1	-	13.30	13300	4733.6	2809.70
1.81	1.2	-	13.77	13770	4736.7	2907.07
1.90	1.2	-	13.97	13970	4739.8	$\boxed{2947.36}$
2.02	1.3	-	13.82	13820	4743.3	2913.57
2.12	1.4	-	13.23	13230	4746.6	2787.27
2.22	1.5	-	12.30	12300	4749.8	2589.57
2.32	1.5	-	11.15	11150	4752.8	2345.97

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 07-01-2020 S70
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 7/1/2020
W.O. No.#: -
Date Received: 7/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.5	Wet mass of specimen	g	1228.3
Length of specimen	mm	149.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	707.12	Bulk density	Mg/m^3	1.74
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

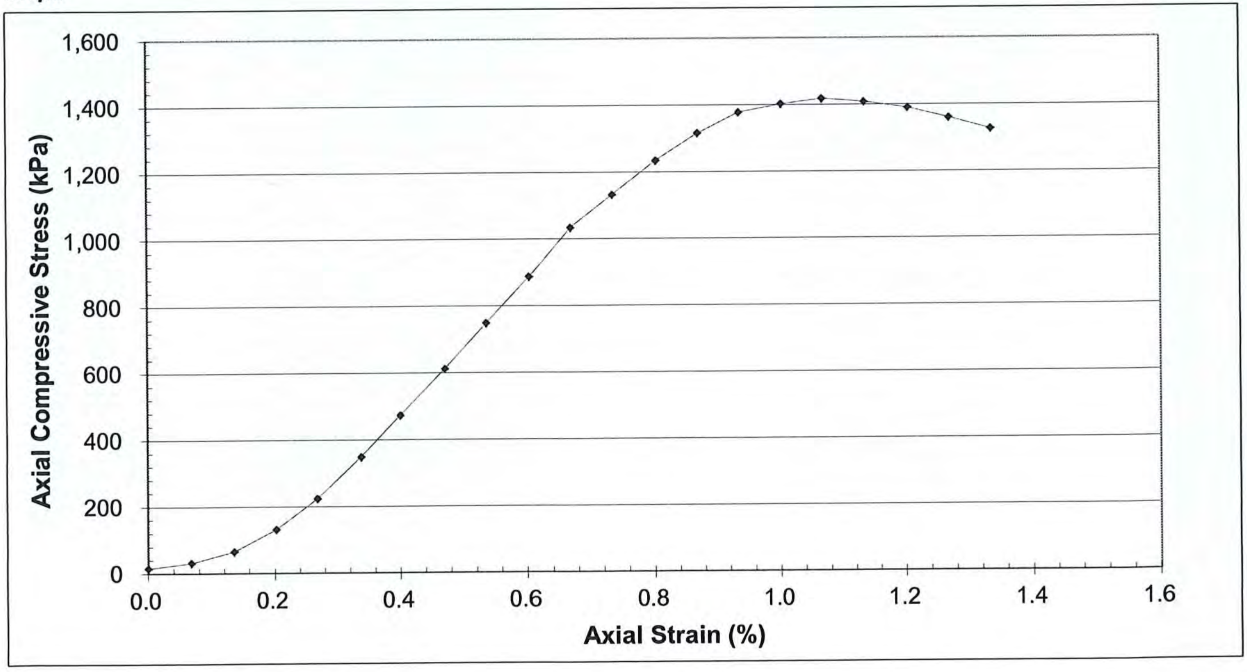
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1418	kPa
Axial strain at failure	1.1	%
Unconfined compressive strength, (q_u)	1418	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 21/11/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 7 January 2020

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 7/1/2020
Sample No.#: S3-SC074A 07-01-2020 S70
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 7/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	149.9
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4717.3	14.84
0.10	0.1	-	0.15	150	4720.5	31.78
0.20	0.1	-	0.31	310	4723.7	65.63
0.30	0.2	-	0.62	620	4726.9	131.17
0.40	0.3	-	1.06	1060	4730.0	224.10
0.51	0.3	-	1.65	1650	4733.3	348.60
0.60	0.4	-	2.24	2240	4736.3	472.95
0.71	0.5	-	2.90	2900	4739.6	611.87
0.80	0.5	-	3.55	3550	4742.7	748.52
0.91	0.6	-	4.21	4210	4746.0	887.07
1.00	0.7	-	4.91	4910	4749.0	1033.89
1.10	0.7	-	5.38	5380	4752.2	1132.11
1.20	0.8	-	5.87	5870	4755.5	1234.36
1.30	0.9	-	6.26	6260	4758.7	1315.49
1.40	0.9	-	6.56	6560	4761.8	1377.62
1.50	1.0	-	6.68	6680	4765.1	1401.87
1.60	1.1	-	6.76	6760	4768.2	1417.73
1.70	1.1	-	6.72	6720	4771.4	1408.38
1.81	1.2	-	6.64	6640	4774.8	1390.63
1.90	1.3	-	6.50	6500	4778.0	1360.41
2.00	1.3	-	6.34	6340	4781.1	1326.05

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S71
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1178.7
Length of specimen	mm	148.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	695.17	Bulk density	Mg/m^3	1.70
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

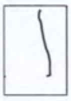
Visual Description: Dark brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

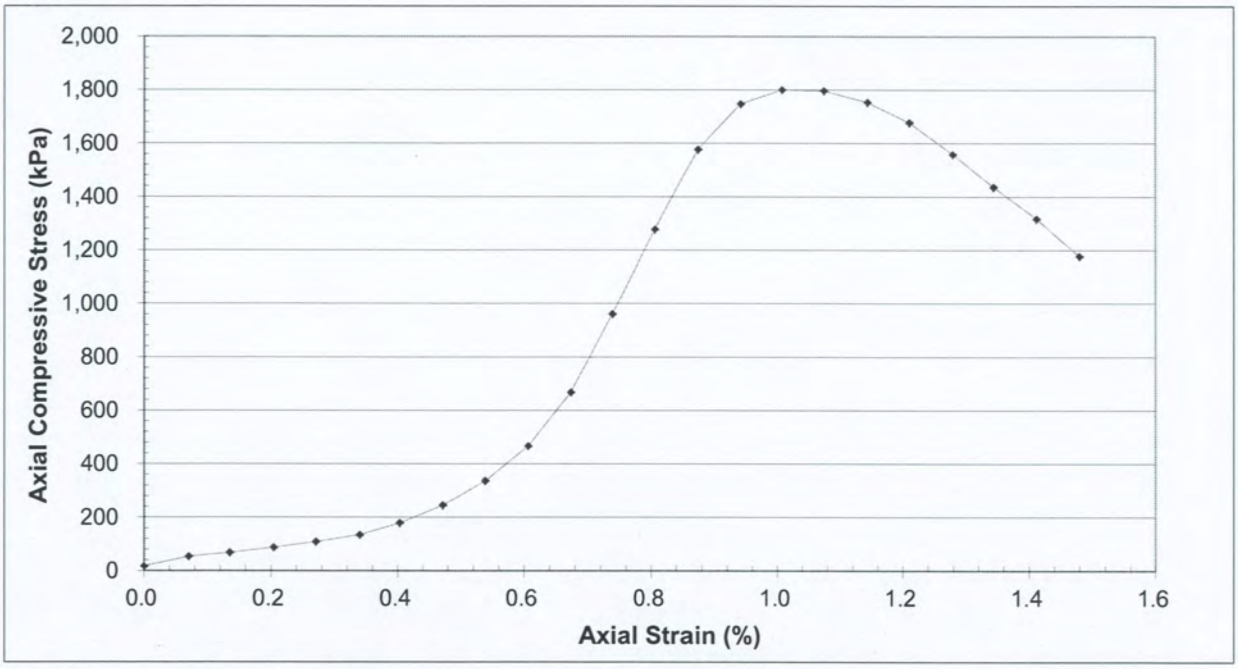
Compression Results

Maximum axial stress	1800	kPa
Axial strain at failure	1.0	%
Unconfined compressive strength, (q_u)	1800	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 21/11/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 January 2020

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#:	Sang Hing - Kuly Joint Venture
Project#:	YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#:	-	Depth (m)#:	-	Date of Test:	13/1/2020
Sample No.#:	S3-SC074A 13-01-2020 S71	Actual Depth (m):	-	W.O. No.#:	-
Sample Type#:	PT75	Sample Origin#:	Contaminated soil mixed with 10% cement and 10% sand	Date Received:	13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	148.9
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.5% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4668.7	17.14
0.11	0.1	-	0.25	250	4672.0	53.51
0.20	0.1	-	0.32	320	4675.0	68.45
0.30	0.2	-	0.41	410	4678.3	87.64
0.40	0.3	-	0.51	510	4681.4	108.94
0.51	0.3	-	0.63	630	4684.6	134.48
0.60	0.4	-	0.84	840	4687.6	179.20
0.70	0.5	-	1.15	1150	4690.8	245.16
0.80	0.5	-	1.58	1580	4694.0	336.60
0.90	0.6	-	2.19	2190	4697.2	466.23
1.00	0.7	-	3.14	3140	4700.4	668.03
1.10	0.7	-	4.52	4520	4703.5	960.99
1.20	0.8	-	6.01	6010	4706.7	1276.91
1.30	0.9	-	7.43	7430	4709.9	1577.53
1.40	0.9	-	8.24	8240	4713.1	1748.32
1.50	1.0	-	8.49	8490	4716.3	1800.15
1.60	1.1	-	8.48	8480	4719.4	1796.82
1.70	1.1	-	8.28	8280	4722.7	1753.22
1.80	1.2	-	7.93	7930	4725.9	1677.98
1.91	1.3	-	7.37	7370	4729.2	1558.39
2.00	1.3	-	6.80	6800	4732.3	1436.93
2.10	1.4	-	6.24	6240	4735.6	1317.68
2.20	1.5	-	5.58	5580	4738.8	1177.50

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S72
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

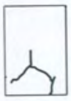
Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1194.2
Length of specimen	mm	148.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	694.24	Bulk density	Mg/m^3	1.72
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

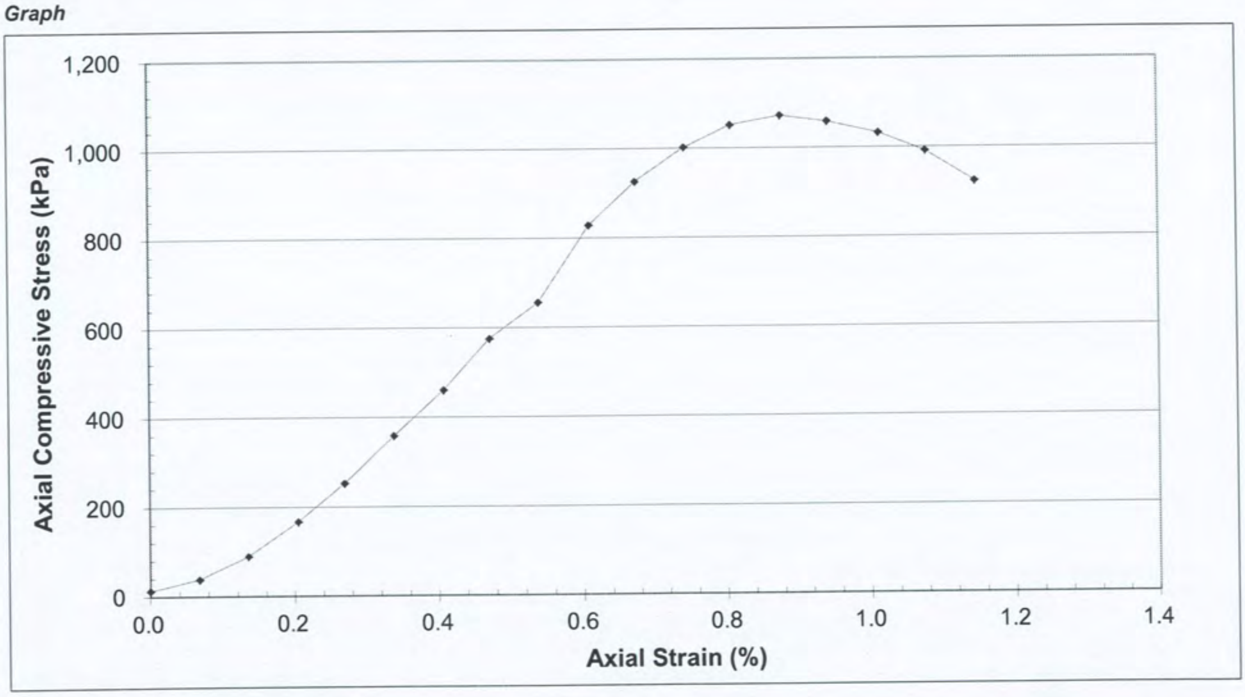
* Delete whichever is inappropriate

Visual Description: Dark brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1072	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.88	%		
Unconfined compressive strength, (q_u)	1072	kPa		

Graph



Remarks : Mixing Date : 07/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 January 2020

Certified by :
HUI King Fai

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S72
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	148.7
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4668.7	12.85
0.10	0.1	-	0.18	180	4671.9	38.53
0.20	0.1	-	0.42	420	4675.0	89.84
0.30	0.2	-	0.78	780	4678.3	166.73
0.40	0.3	-	1.18	1180	4681.4	252.06
0.50	0.3	-	1.68	1680	4684.6	358.62
0.61	0.4	-	2.16	2160	4687.8	460.77
0.70	0.5	-	2.70	2700	4690.8	575.59
0.80	0.5	-	3.08	3080	4694.0	656.15
0.91	0.6	-	3.89	3890	4697.3	828.13
1.00	0.7	-	4.35	4350	4700.4	925.46
1.10	0.7	-	4.71	4710	4703.7	1001.35
1.20	0.8	-	4.95	4950	4706.7	1051.69
1.30	0.9	-	5.05	5050	4710.0	$\boxed{1072.18}$
1.40	0.9	-	4.99	4990	4713.1	1058.74
1.51	1.0	-	4.87	4870	4716.5	1032.55
1.60	1.1	-	4.68	4680	4719.6	991.61
1.70	1.1	-	4.36	4360	4722.8	923.18

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224R1
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S73
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand
Date of Test: 23/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.5	Wet mass of specimen	g	1309.3
Length of specimen	mm	152.4	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	718.92	Bulk density	Mg/m^3	1.82
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

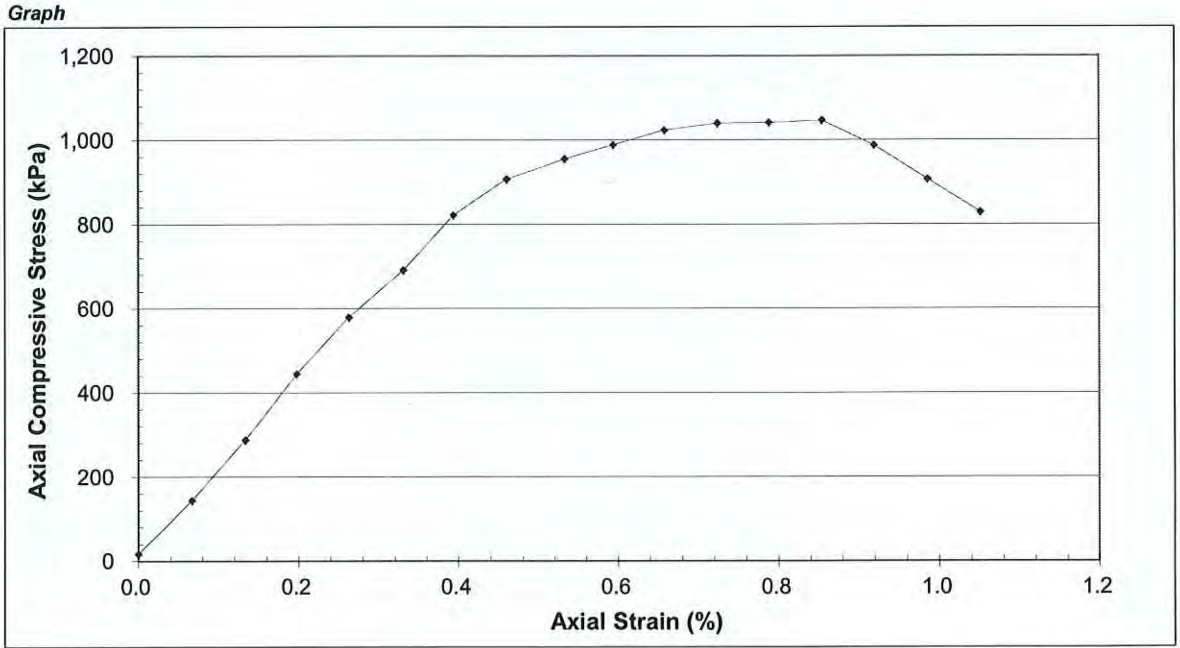
Visual Description: Olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1047	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.85	%	
Unconfined compressive strength, (q_u)	1047	kPa	

Graph



Remarks : (1) Mixing Date : 07/12/2019
(2) This report with sample no. S3-SC074A 20-12-2019 S73 supersedes the previously report no. SLST0190224.
(3) Amendment of sample origin description due to typing error.

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming
Date : 23 December 2019

Certified by : HUI King Fai
Date : 20 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224R1
Job No.: SHK190048

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S73
Depth (m)#: -
Actual Depth (m): -
Date of Test: 23/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.4
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.9%.
Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.
Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4717.3	16.96
0.10	0.1	-	0.68	680	4720.5	144.05
0.20	0.1	-	1.36	1360	4723.6	287.92
0.30	0.2	-	2.10	2100	4726.6	444.29
0.40	0.3	-	2.74	2740	4729.7	579.31
0.50	0.3	-	3.27	3270	4732.9	690.90
0.60	0.4	-	3.89	3890	4735.9	821.38
0.70	0.5	-	4.30	4300	4739.1	907.35
0.81	0.5	-	4.53	4530	4742.6	955.18
0.91	0.6	-	4.69	4690	4745.5	988.31
1.00	0.7	-	4.86	4860	4748.5	1023.47
1.10	0.7	-	4.94	4940	4751.7	1039.62
1.20	0.8	-	4.95	4950	4754.8	1041.05
1.30	0.9	-	4.98	4980	4757.9	1046.67
1.40	0.9	-	4.70	4700	4761.1	987.17
1.50	1.0	-	4.32	4320	4764.3	906.75
1.60	1.1	-	3.95	3950	4767.4	828.54

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200013
Job No.: SHK200005
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 15/1/2020
Sample No.#: S3-SC074A 15-01-2020 S74
Actual Depth (m): -
W.O. No.#: -
Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1153.0
Length of specimen	mm	147.5	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	688.64	Bulk density	Mg/m^3	1.67
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

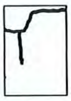
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

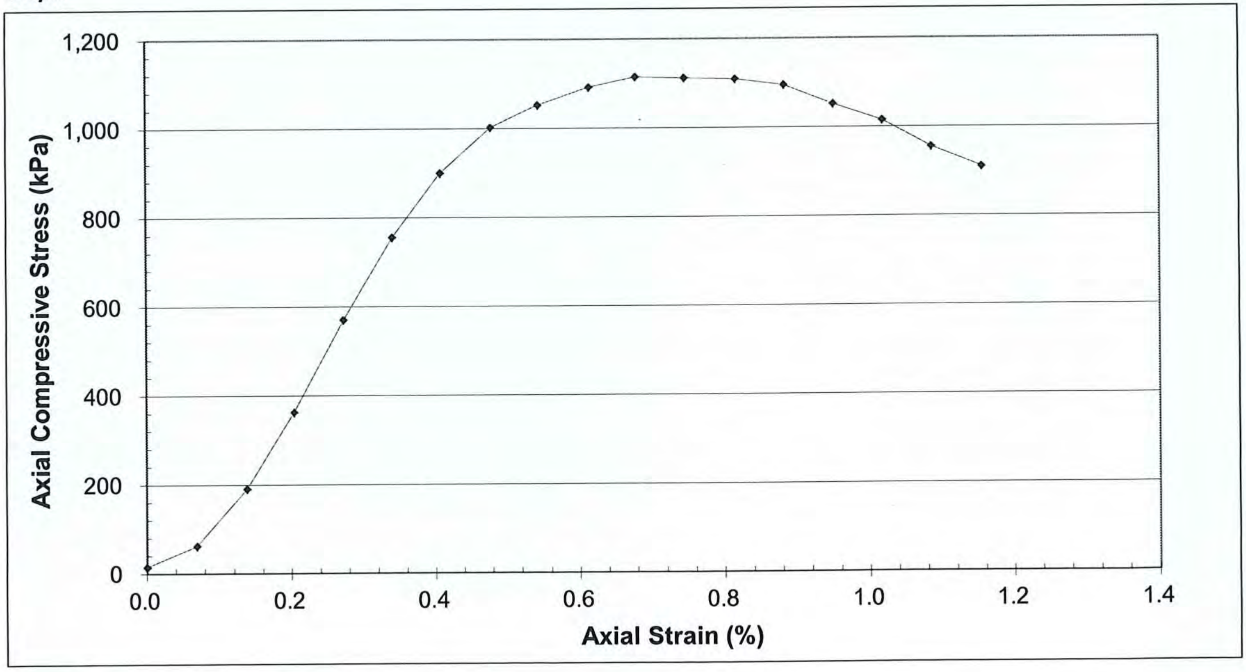
Compression Results

Maximum axial stress	1115	kPa
Axial strain at failure	0.68	%
Unconfined compressive strength, (q_u)	1115	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 09/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 15 January 2020

Date : 18 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200013
Job No.: SHK200005
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 15/1/2020
Sample No.#: S3-SC074A
15-01-2020 S74
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 7.5% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	147.5
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4668.7	14.99
0.10	0.1	-	0.29	290	4671.9	62.07
0.20	0.1	-	0.89	890	4675.2	190.37
0.30	0.2	-	1.70	1700	4678.3	363.38
0.40	0.3	-	2.67	2670	4681.5	570.33
0.50	0.3	-	3.54	3540	4684.7	755.66
0.60	0.4	-	4.22	4220	4687.8	900.20
0.71	0.5	-	4.70	4700	4691.2	1001.89
0.80	0.5	-	4.94	4940	4694.2	1052.36
0.91	0.6	-	5.13	5130	4697.6	1092.05
1.00	0.7	-	5.24	5240	4700.6	$\boxed{1114.74}$
1.10	0.7	-	5.23	5230	4703.8	1111.87
1.20	0.8	-	5.22	5220	4707.2	1108.95
1.30	0.9	-	5.16	5160	4710.3	1095.47
1.40	1.0	-	4.96	4960	4713.5	1052.29
1.50	1.0	-	4.79	4790	4716.8	1015.53
1.60	1.1	-	4.51	4510	4720.0	955.52
1.70	1.2	-	4.30	4300	4723.3	910.38

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200004
Job No.: SHK200001
Page: 1 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: S3-SC074A 06-01-2020 S75
Sample Type[#]: PT75
Depth (m)[#]: -
Actual Depth (m): -
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 6/1/2020
W.O. No.[#]: -
Date Received: 6/1/2020

[#] Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1221.5
Length of specimen	mm	149.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	698.91	Bulk density	Mg/m^3	1.75
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

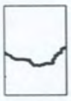
Visual Description: Greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

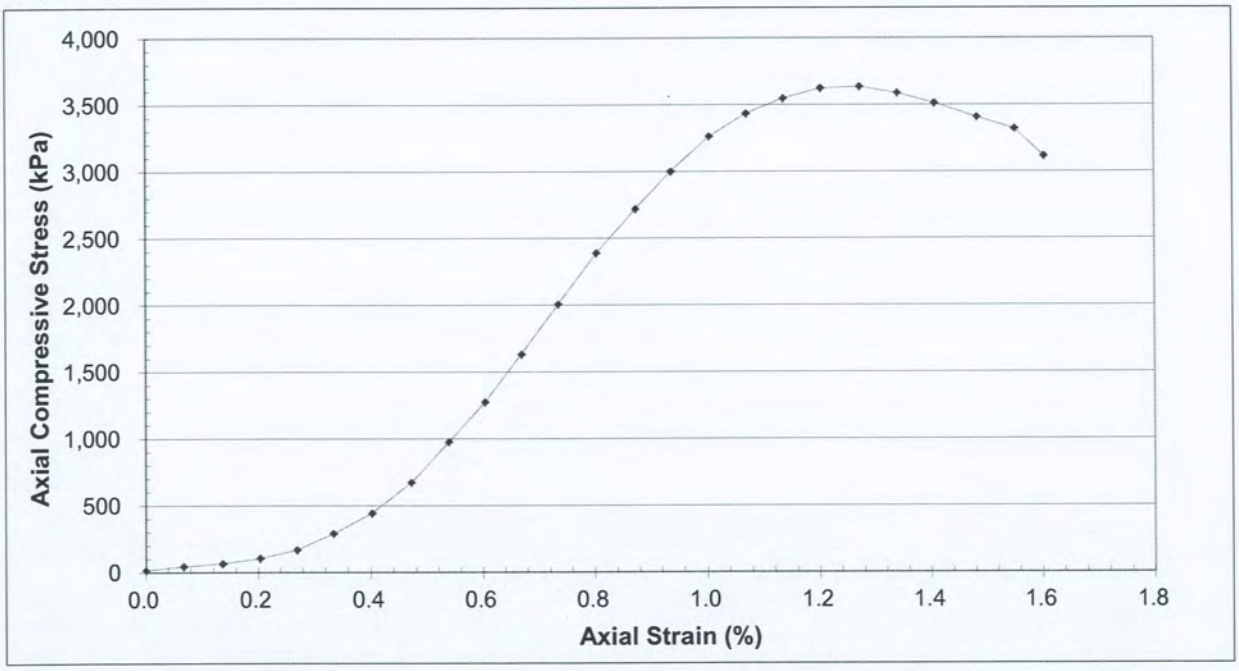
Compression Results

Maximum axial stress	3635	kPa
Axial strain at failure	1.3	%
Unconfined compressive strength, (q_u)	3635	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 10/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 6 January 2020

Certified by :
HUI King Fai

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200004
Job No.: SHK200001
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 6/1/2020
Sample No.#: S3-SC074A 06-01-2020 S75
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 6/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	149.7
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.6% of axial strain and the peak axial compressive stress is reached at 1.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4668.7	17.14
0.10	0.1	-	0.21	210	4671.9	44.95
0.20	0.1	-	0.31	310	4675.1	66.31
0.31	0.2	-	0.49	490	4678.3	104.74
0.40	0.3	-	0.79	790	4681.3	168.76
0.50	0.3	-	1.36	1360	4684.4	290.32
0.60	0.4	-	2.08	2080	4687.6	443.73
0.71	0.5	-	3.16	3160	4690.9	673.65
0.81	0.5	-	4.58	4580	4694.0	975.71
0.90	0.6	-	5.99	5990	4697.1	1275.26
1.00	0.7	-	7.67	7670	4700.2	1631.85
1.10	0.7	-	9.44	9440	4703.3	2007.09
1.20	0.8	-	11.24	11240	4706.6	2388.16
1.31	0.9	-	12.81	12810	4709.8	2719.83
1.40	0.9	-	14.13	14130	4712.9	2998.16
1.50	1.0	-	15.38	15380	4716.1	3261.16
1.60	1.1	-	16.20	16200	4719.2	3432.76
1.70	1.1	-	16.75	16750	4722.4	3546.93
1.80	1.2	-	17.12	17120	4725.6	3622.84
1.91	1.3	-	17.19	17190	4728.9	$\boxed{3635.09}$
2.01	1.3	-	16.97	16970	4732.2	3586.07
2.11	1.4	-	16.63	16630	4735.4	3511.86
2.22	1.5	-	16.14	16140	4739.0	3405.75
2.32	1.6	-	15.74	15740	4742.3	3319.07
2.40	1.6	-	14.78	14780	4744.8	3114.97

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 07-01-2020 S76
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 7/1/2020
W.O. No.#: -
Date Received: 7/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.6	Wet mass of specimen	g	1261.1
Length of specimen	mm	151.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4729.5	Moisture content	%	-
Volume of specimen	cm^3	717.46	Bulk density	Mg/m^3	1.76
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

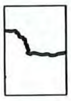
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

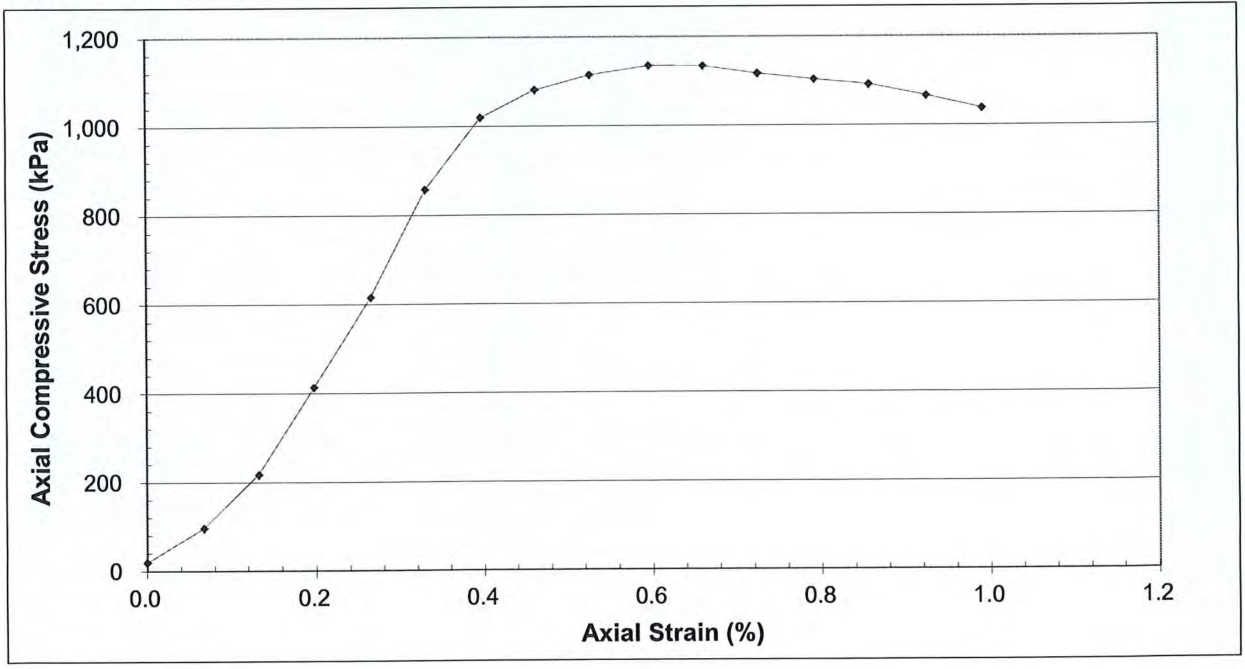
Compression Results

Maximum axial stress	1135	kPa
Axial strain at failure	0.60	%
Unconfined compressive strength, (q_u)	1135	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 10/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 7 January 2020

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 7/1/2020
Sample No.#: S3-SC074A 07-01-2020 S76
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 7/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.7
		Original area (A_o)	mm^2	4729.5

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4729.5	19.03
0.10	0.1	-	0.46	460	4732.7	97.20
0.20	0.1	-	1.03	1030	4735.8	217.49
0.30	0.2	-	1.96	1960	4738.9	413.60
0.40	0.3	-	2.92	2920	4742.0	615.77
0.50	0.3	-	4.07	4070	4745.2	857.72
0.60	0.4	-	4.84	4840	4748.3	1019.31
0.70	0.5	-	5.14	5140	4751.4	1081.78
0.80	0.5	-	5.30	5300	4754.6	1114.72
0.91	0.6	-	5.40	5400	4757.9	$\boxed{1134.96}$
1.00	0.7	-	5.40	5400	4761.0	1134.23
1.10	0.7	-	5.32	5320	4764.1	1116.70
1.20	0.8	-	5.26	5260	4767.3	1103.35
1.30	0.9	-	5.21	5210	4770.4	1092.15
1.40	0.9	-	5.09	5090	4773.7	1066.27
1.50	1.0	-	4.96	4960	4776.8	1038.34

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200004
Job No.: SHK200001
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 06-01-2020 S77
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 6/1/2020
W.O. No.#: -
Date Received: 6/1/2020

Information provided by Client

Specimen Details

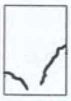
Diameter of specimen	mm	77.5	Wet mass of specimen	g	1218.1
Length of specimen	mm	152.6	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	719.86	Bulk density	Mg/m^3	1.69
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

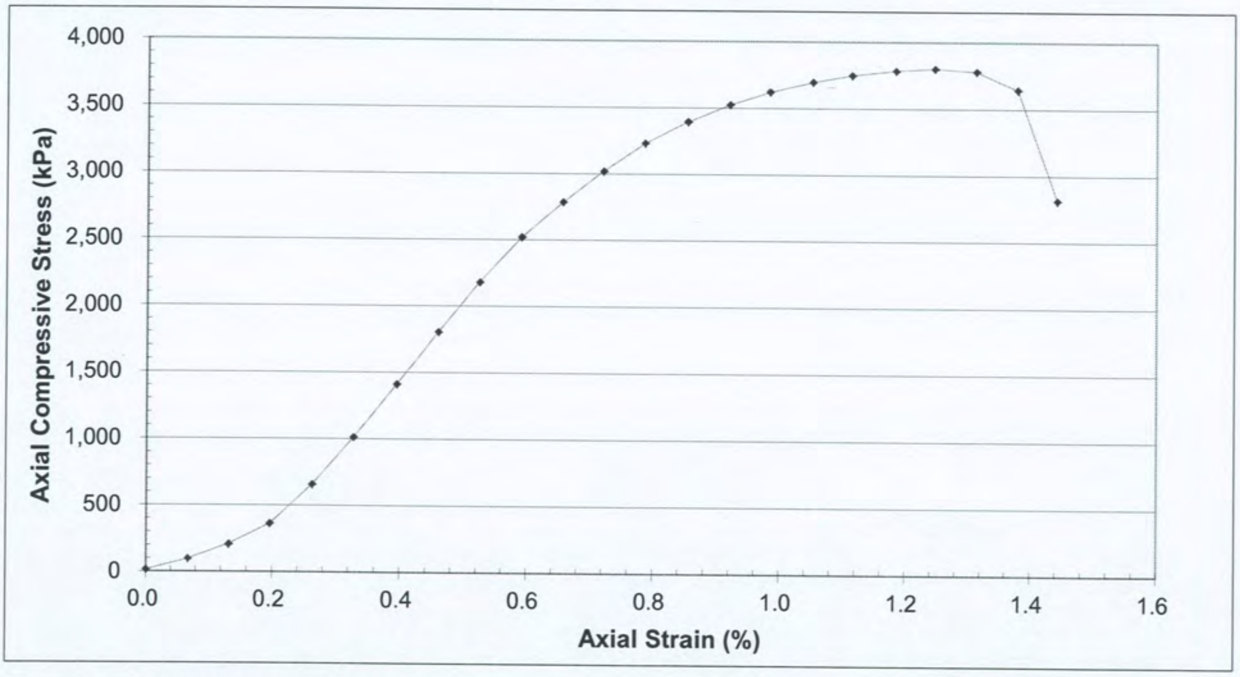
Visual Description: Light grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	3802	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	1.2	%	
Unconfined compressive strength, (q_u)	3802	kPa	

Graph



Remarks : Mixing Date : 10/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 6 January 2020

Certified by :
HUI King Fai

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200004
Job No.: SHK200001
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 6/1/2020
Sample No.#: S3-SC074A 06-01-2020 S77
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 6/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.6
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 1.4% of axial strain and the peak axial compressive stress is reached at 1.2%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4717.3	14.84
0.10	0.1	-	0.45	450	4720.5	95.33
0.20	0.1	-	0.98	980	4723.5	207.47
0.30	0.2	-	1.71	1710	4726.6	361.78
0.40	0.3	-	3.11	3110	4729.8	657.54
0.50	0.3	-	4.79	4790	4732.8	1012.08
0.60	0.4	-	6.68	6680	4736.0	1410.47
0.70	0.5	-	8.56	8560	4739.1	1806.25
0.80	0.5	-	10.34	10340	4742.2	2180.43
0.90	0.6	-	11.96	11960	4745.4	2520.35
1.00	0.7	-	13.23	13230	4748.5	2786.14
1.10	0.7	-	14.35	14350	4751.6	3020.05
1.20	0.8	-	15.36	15360	4754.7	3230.50
1.30	0.9	-	16.15	16150	4758.0	3394.32
1.40	0.9	-	16.78	16780	4761.1	3524.39
1.50	1.0	-	17.25	17250	4764.2	3620.79
1.61	1.1	-	17.62	17620	4767.4	3695.90
1.70	1.1	-	17.89	17890	4770.4	3750.18
1.81	1.2	-	18.07	18070	4773.8	3785.25
1.90	1.2	-	18.16	18160	4776.8	3801.70
2.00	1.3	-	18.07	18070	4780.0	3780.30
2.10	1.4	-	17.43	17430	4783.2	3643.97
2.20	1.4	-	13.47	13470	4786.3	2814.26

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190230
Job No.: SHK190050
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 30-12-2019 S78
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 30/12/2019
W.O. No.#: -
Date Received: 30/12/2019

Information provided by Client

Specimen Details

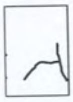
Diameter of specimen	mm	76.8	Wet mass of specimen	g	1209.6
Length of specimen	mm	155.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4632.5	Moisture content	%	-
Volume of specimen	cm^3	718.96	Bulk density	Mg/m^3	1.68
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

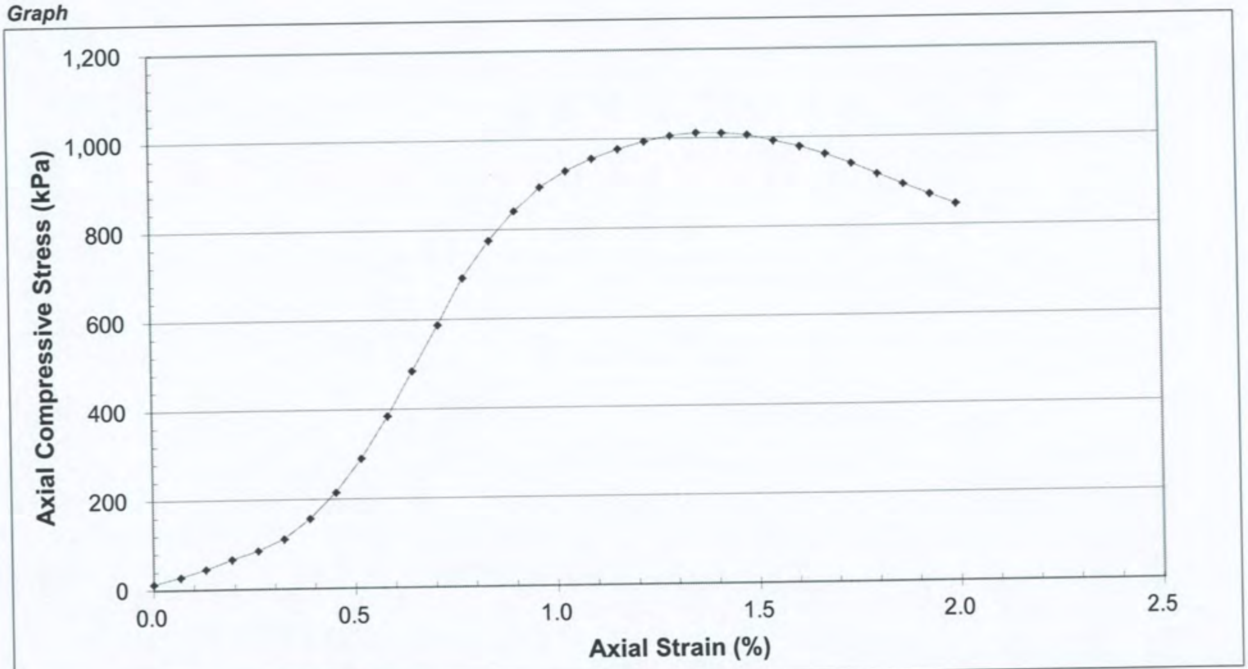
Visual Description: Light grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1011	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	1.4	%	
Unconfined compressive strength, (q_u)	1011	kPa	

Graph



Remarks : Mixing Date : 11/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 30 December 2019

Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190230
Job No.: SHK190050
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 30-12-2019 S78
Depth (m)#: -
Actual Depth (m): -
Date of Test: 30/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 30/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	155.2
		Original area (A_o)	mm^2	4632.5

The compression was terminated at 2% of axial strain and the peak axial compressive stress is reached at 1.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.06	60	4632.5	12.95
0.10	0.1	-	0.13	130	4635.5	28.04
0.20	0.1	-	0.21	210	4638.4	45.27
0.30	0.2	-	0.31	310	4641.4	66.79
0.40	0.3	-	0.40	400	4644.5	86.12
0.50	0.3	-	0.52	520	4647.5	111.89
0.60	0.4	-	0.73	730	4650.5	156.97
0.70	0.5	-	1.00	1000	4653.5	214.89
0.80	0.5	-	1.35	1350	4656.5	289.92
0.90	0.6	-	1.79	1790	4659.6	384.15
1.00	0.6	-	2.26	2260	4662.5	484.71
1.10	0.7	-	2.74	2740	4665.6	587.28
1.20	0.8	-	3.23	3230	4668.6	691.86
1.30	0.8	-	3.62	3620	4671.7	774.89
1.40	0.9	-	3.93	3930	4674.7	840.70
1.50	1.0	-	4.18	4180	4677.7	893.59
1.60	1.0	-	4.35	4350	4680.8	929.34
1.70	1.1	-	4.48	4480	4683.8	956.48
1.80	1.2	-	4.58	4580	4686.9	977.19
1.90	1.2	-	4.66	4660	4690.0	993.61
2.01	1.3	-	4.72	4720	4693.1	1005.73
2.10	1.4	-	4.75	4750	4696.1	1011.47
2.20	1.4	-	4.75	4750	4699.1	1010.82
2.30	1.5	-	4.73	4730	4702.2	1005.92
2.40	1.5	-	4.67	4670	4705.3	992.51
2.50	1.6	-	4.61	4610	4708.4	979.11
2.60	1.7	-	4.53	4530	4711.5	961.49
2.70	1.7	-	4.43	4430	4714.6	939.64
2.80	1.8	-	4.32	4320	4717.6	915.72
2.90	1.9	-	4.21	4210	4720.7	891.82
3.00	1.9	-	4.10	4100	4723.8	867.94
3.10	2.0	-	4.00	4000	4726.9	846.22

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 07-01-2020 S79
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 7/1/2020
W.O. No.#: -
Date Received: 7/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1247.3
Length of specimen	mm	151.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	712.86	Bulk density	Mg/m^3	1.75
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

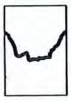
Visual Description: Olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

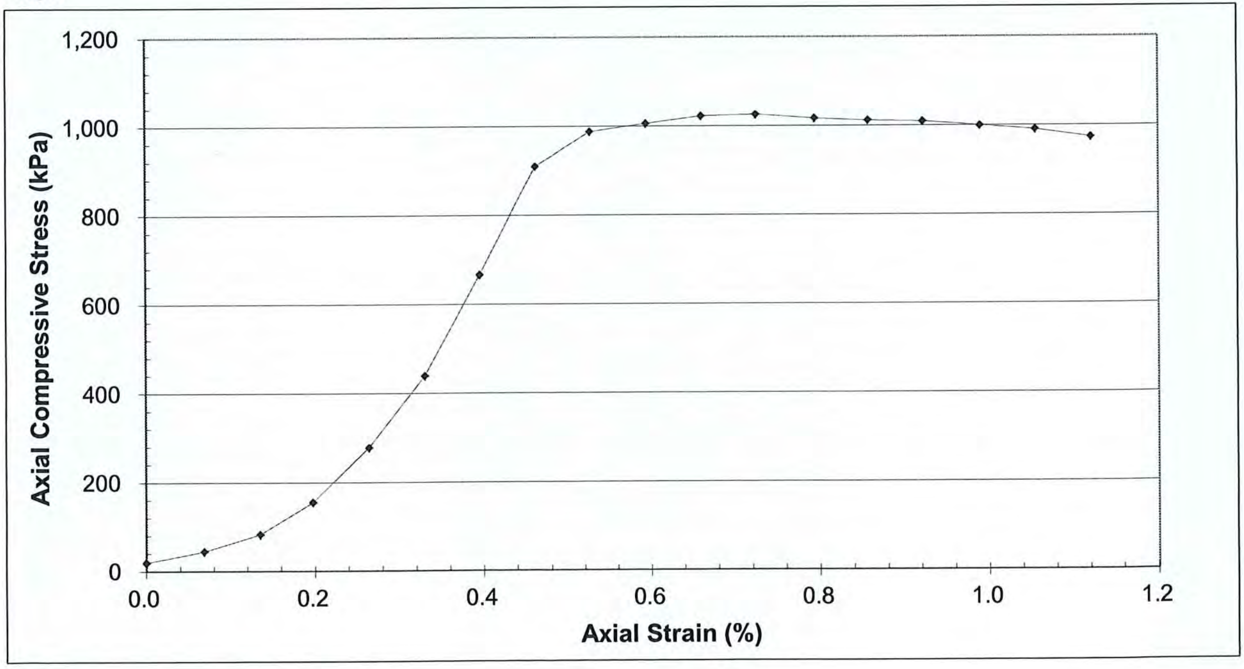
Compression Results

Maximum axial stress	1026	kPa
Axial strain at failure	0.72	%
Unconfined compressive strength, (q_u)	1026	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 12/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 7 January 2020

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 7/1/2020
Sample No.#: S3-SC074A
07-01-2020 S79
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 7/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.9
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4693.0	19.18
0.10	0.1	-	0.21	210	4696.2	44.72
0.21	0.1	-	0.39	390	4699.3	82.99
0.30	0.2	-	0.73	730	4702.3	155.24
0.40	0.3	-	1.31	1310	4705.4	278.40
0.50	0.3	-	2.07	2070	4708.5	439.63
0.60	0.4	-	3.14	3140	4711.6	666.44
0.70	0.5	-	4.29	4290	4714.7	909.91
0.80	0.5	-	4.66	4660	4717.8	987.74
0.90	0.6	-	4.75	4750	4721.0	1006.13
1.00	0.7	-	4.83	4830	4724.2	1022.40
1.10	0.7	-	4.85	4850	4727.2	$\boxed{1025.97}$
1.21	0.8	-	4.81	4810	4730.6	1016.79
1.30	0.9	-	4.79	4790	4733.6	1011.92
1.40	0.9	-	4.78	4780	4736.7	1009.15
1.50	1.0	-	4.74	4740	4739.9	1000.02
1.60	1.1	-	4.70	4700	4743.0	990.93
1.70	1.1	-	4.62	4620	4746.2	973.41

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200006
Job No.: SHK200003
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 08-01-2020 S80
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 8/1/2020
W.O. No.#: -
Date Received: 8/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.5	Wet mass of specimen	g	1281.4
Length of specimen	mm	155.4	Dry mass of specimen	g	-
Area of specimen	mm^2	4717.3	Moisture content	%	-
Volume of specimen	cm^3	733.07	Bulk density	Mg/m^3	1.75
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

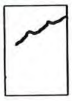
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

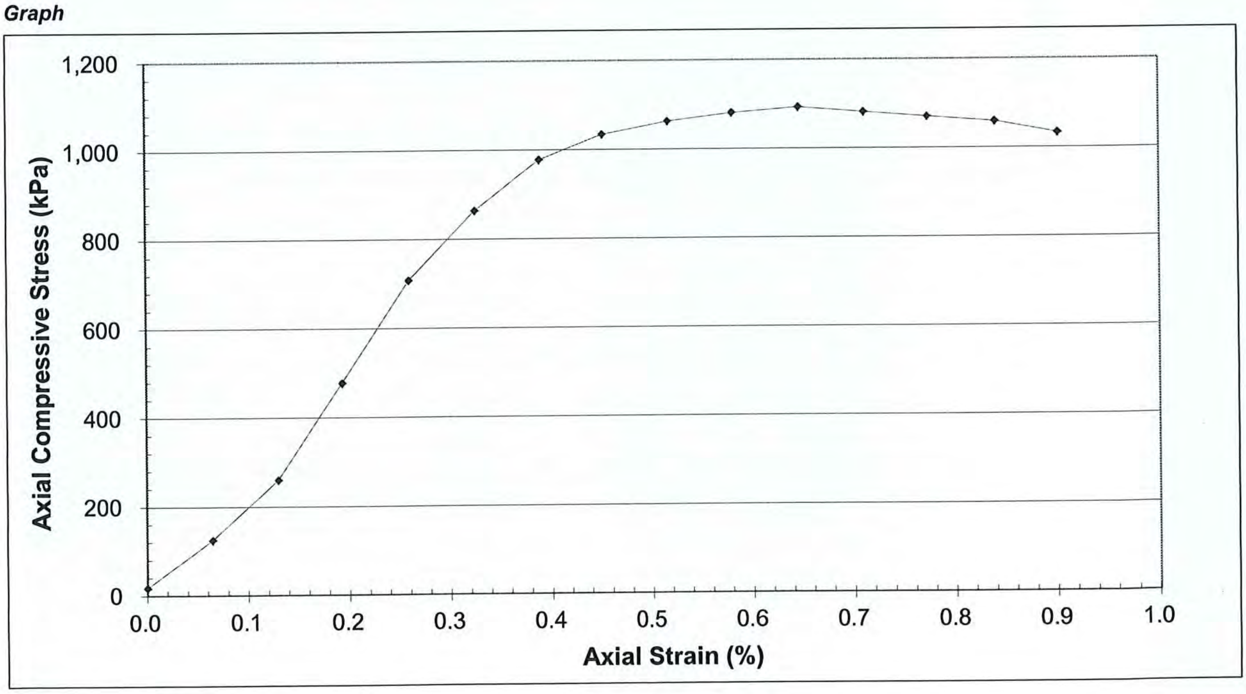
Compression Results

Maximum axial stress	1093	kPa
Axial strain at failure	0.65	%
Unconfined compressive strength, (q_u)	1093	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 12/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 8 January 2020

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200006
Job No.: SHK200003
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 08-01-2020 S80
Depth (m)#: -
Actual Depth (m): -
Date of Test: 8/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 8/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	155.4
		Original area (A_o)	mm^2	4717.3

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4717.3	16.96
0.10	0.1	-	0.59	590	4720.3	124.99
0.20	0.1	-	1.23	1230	4723.4	260.40
0.30	0.2	-	2.26	2260	4726.4	478.16
0.40	0.3	-	3.35	3350	4729.6	708.31
0.51	0.3	-	4.09	4090	4732.7	864.20
0.60	0.4	-	4.63	4630	4735.7	977.68
0.70	0.5	-	4.90	4900	4738.7	1034.04
0.80	0.5	-	5.04	5040	4741.8	1062.89
0.90	0.6	-	5.13	5130	4744.8	1081.17
1.00	0.6	-	5.19	5190	4748.0	$\boxed{1093.10}$
1.10	0.7	-	5.14	5140	4751.1	1081.87
1.20	0.8	-	5.09	5090	4754.0	1070.67
1.31	0.8	-	5.04	5040	4757.2	1059.44
1.40	0.9	-	4.92	4920	4760.2	1033.57

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 07-01-2020 S81
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 7/1/2020
W.O. No.#: -
Date Received: 7/1/2020

Information provided by Client

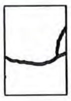
Specimen Details

Diameter of specimen	mm	76.8	Wet mass of specimen	g	1232.3
Length of specimen	mm	150.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4632.5	Moisture content	%	-
Volume of specimen	cm^3	698.58	Bulk density	Mg/m^3	1.76
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

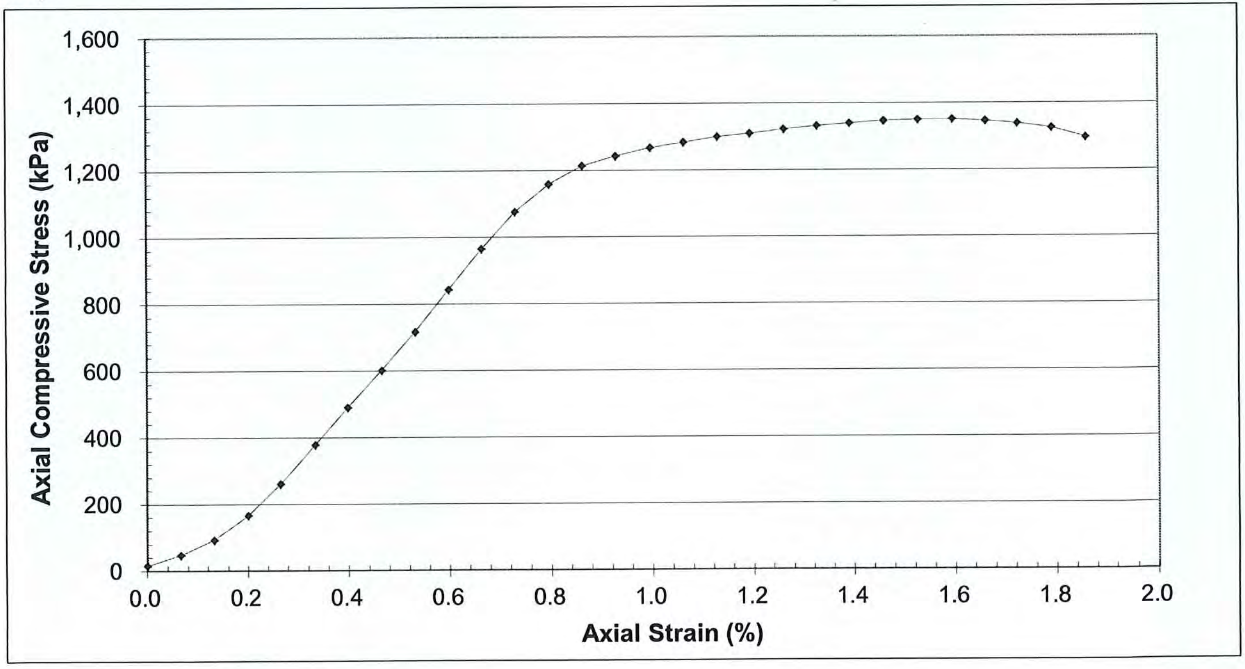
* Delete whichever is inappropriate

Visual Description: Olive grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1351	kPa	Sketch of failure conditions
Axial strain at failure	1.6	%	Inclination of shear surface
Unconfined compressive strength, (q_u)	1351	kPa	

Graph



Remarks : Mixing Date : 12/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 7 January 2020

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200005
Job No.: SHK200002
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 7/1/2020
Sample No.#: S3-SC074A
07-01-2020 S81
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 7/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.8
		Original area (A_o)	mm^2	4632.5

The compression was terminated at 1.9% of axial strain and the peak axial compressive stress is reached at 1.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4632.5	15.11
0.10	0.1	-	0.22	220	4635.5	47.46
0.20	0.1	-	0.43	430	4638.6	92.70
0.30	0.2	-	0.77	770	4641.7	165.89
0.40	0.3	-	1.21	1210	4644.8	260.51
0.50	0.3	-	1.76	1760	4648.0	378.66
0.60	0.4	-	2.28	2280	4651.0	490.22
0.70	0.5	-	2.80	2800	4654.1	601.62
0.80	0.5	-	3.34	3340	4657.2	717.16
0.90	0.6	-	3.93	3930	4660.3	843.29
1.00	0.7	-	4.50	4500	4663.4	964.96
1.10	0.7	-	5.02	5020	4666.5	1075.75
1.20	0.8	-	5.41	5410	4669.6	1158.55
1.30	0.9	-	5.67	5670	4672.7	1213.42
1.40	0.9	-	5.81	5810	4675.9	1242.55
1.50	1.0	-	5.93	5930	4679.1	1267.34
1.60	1.1	-	6.01	6010	4682.2	1283.58
1.70	1.1	-	6.09	6090	4685.4	1299.79
1.80	1.2	-	6.14	6140	4688.4	1309.61
1.90	1.3	-	6.20	6200	4691.6	1321.50
2.00	1.3	-	6.25	6250	4694.8	1331.27
2.10	1.4	-	6.29	6290	4697.9	1338.90
2.20	1.5	-	6.33	6330	4701.1	1346.49
2.30	1.5	-	6.35	6350	4704.3	1349.83
2.41	1.6	-	6.36	6360	4707.6	$\boxed{1351.01}$
2.51	1.7	-	6.34	6340	4710.7	1345.87
2.60	1.7	-	6.31	6310	4713.7	1338.64
2.70	1.8	-	6.25	6250	4717.0	1325.01
2.80	1.9	-	6.12	6120	4720.2	1296.56

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200006
Job No.: SHK200003
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
08-01-2020 S82
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 8/1/2020
W.O. No.#: -
Date Received: 8/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1259.8
Length of specimen	mm	151.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	705.91	Bulk density	Mg/m^3	1.78
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

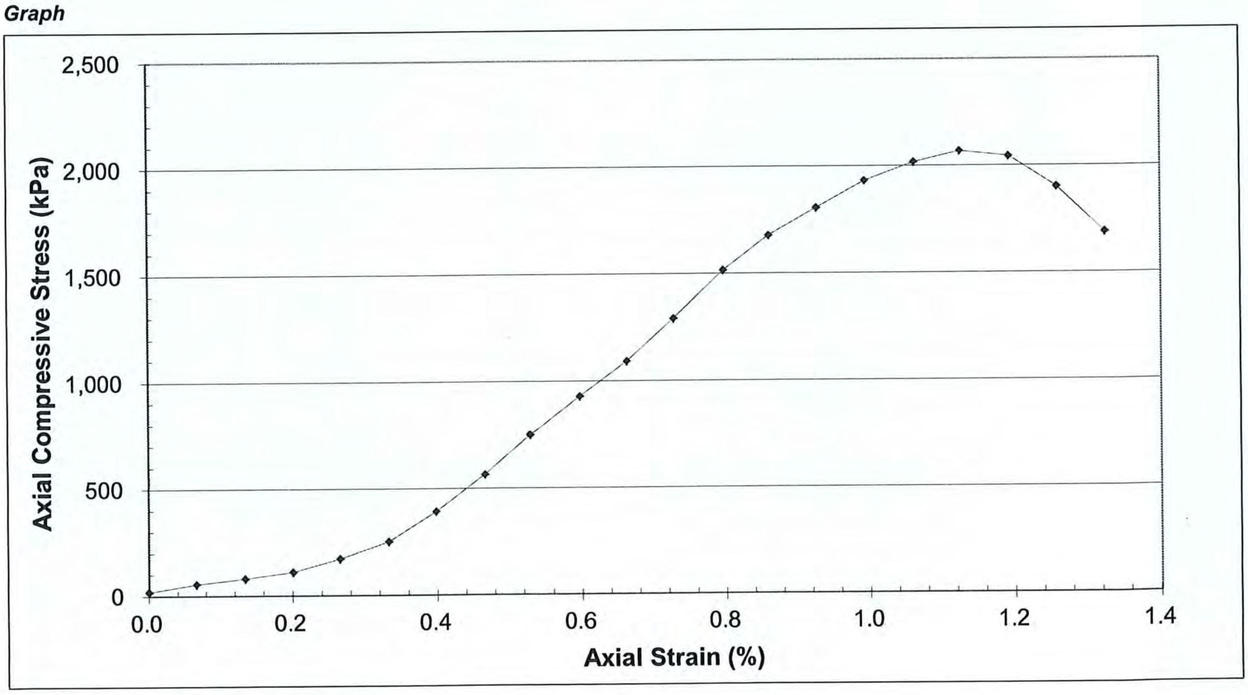
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	2069	kPa
Axial strain at failure	1.1	%
Unconfined compressive strength, (q_u)	2069	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 13/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 8 January 2020

Certified by :
HUI King Fai

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200006
Job No.: SHK200003
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 08-01-2020 S82
Depth (m)#: -
Actual Depth (m): -
Date of Test: 8/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 8/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.2
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.1%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.09	90	4668.7	19.28
0.10	0.1	-	0.26	260	4671.8	55.65
0.20	0.1	-	0.38	380	4675.0	81.28
0.30	0.2	-	0.52	520	4678.1	111.16
0.40	0.3	-	0.81	810	4681.1	173.03
0.50	0.3	-	1.18	1180	4684.3	251.90
0.60	0.4	-	1.84	1840	4687.4	392.54
0.71	0.5	-	2.65	2650	4690.6	564.96
0.80	0.5	-	3.52	3520	4693.6	749.96
0.90	0.6	-	4.36	4360	4696.8	928.30
1.00	0.7	-	5.13	5130	4699.9	1091.52
1.10	0.7	-	6.07	6070	4702.9	1290.68
1.21	0.8	-	7.13	7130	4706.2	1515.01
1.30	0.9	-	7.90	7900	4709.2	1677.55
1.40	0.9	-	8.51	8510	4712.4	1805.86
1.50	1.0	-	9.11	9110	4715.6	1931.88
1.61	1.1	-	9.52	9520	4718.9	2017.44
1.70	1.1	-	9.77	9770	4721.9	$\boxed{2069.09}$
1.80	1.2	-	9.66	9660	4725.1	2044.40
1.90	1.3	-	8.99	8990	4728.3	1901.33
2.00	1.3	-	7.99	7990	4731.4	1688.72

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S83
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.0	Wet mass of specimen	g	1166.5
Length of specimen	mm	149.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	694.30	Bulk density	Mg/m^3	1.68
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

Visual Description: Greyish brown sandy SILT/CLAY with Cement

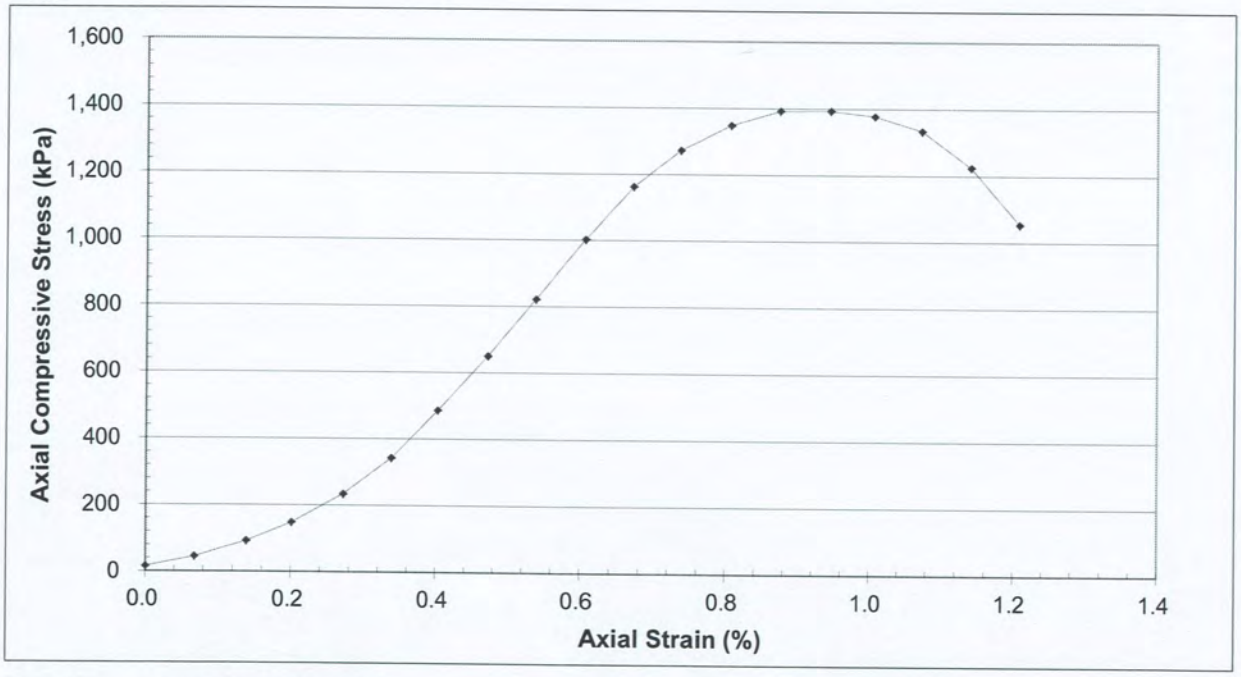
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1393	kPa
Axial strain at failure	0.95	%
Unconfined compressive strength, (q_u)	1393	kPa

Sketch of failure conditions
Inclination of shear surface

Graph



Remarks : Mixing Date : 13/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 January 2020

Certified by :
HUI King Fai

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S83
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	149.1
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4656.6	15.03
0.10	0.1	-	0.21	210	4659.8	45.07
0.21	0.1	-	0.43	430	4663.1	92.21
0.30	0.2	-	0.69	690	4666.0	147.88
0.41	0.3	-	1.09	1090	4669.3	233.44
0.51	0.3	-	1.60	1600	4672.5	342.43
0.60	0.4	-	2.27	2270	4675.5	485.51
0.70	0.5	-	3.04	3040	4678.7	649.75
0.80	0.5	-	3.85	3850	4681.9	822.32
0.91	0.6	-	4.70	4700	4685.1	1003.19
1.00	0.7	-	5.45	5450	4688.1	1162.51
1.10	0.7	-	5.97	5970	4691.2	1272.59
1.20	0.8	-	6.33	6330	4694.5	1348.39
1.30	0.9	-	6.54	6540	4697.7	1392.17
1.41	0.9	-	6.55	6550	4701.1	1393.31
1.50	1.0	-	6.48	6480	4704.0	1377.56
1.60	1.1	-	6.28	6280	4707.1	1334.14
1.70	1.1	-	5.77	5770	4710.4	1224.96
1.80	1.2	-	4.97	4970	4713.6	1054.40

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S84
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.0	Wet mass of specimen	g	1179.9
Length of specimen	mm	148.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	692.91	Bulk density	Mg/m^3	1.70
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

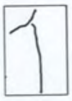
* Delete whichever is inappropriate

Visual Description: Greyish brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

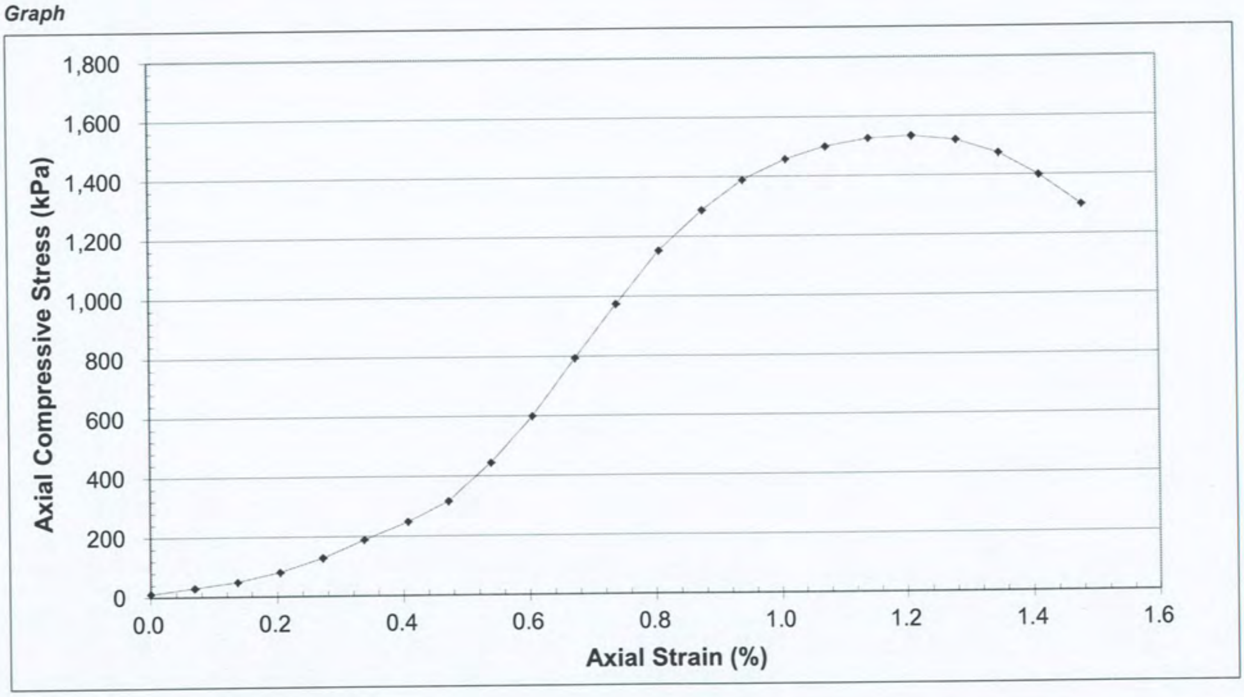
Compression Results

Maximum axial stress	1534	kPa
Axial strain at failure	1.2	%
Unconfined compressive strength, (q_u)	1534	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 14/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 January 2020

Certified by :
HUI King Fai

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
13-01-2020 S84
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	148.8
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 1.5% of axial strain and the peak axial compressive stress is reached at 1.2%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4656.6	10.74
0.10	0.1	-	0.14	140	4659.9	30.04
0.20	0.1	-	0.23	230	4663.0	49.32
0.30	0.2	-	0.38	380	4666.2	81.44
0.41	0.3	-	0.60	600	4669.3	128.50
0.50	0.3	-	0.88	880	4672.4	188.34
0.61	0.4	-	1.16	1160	4675.7	248.09
0.70	0.5	-	1.48	1480	4678.7	316.33
0.80	0.5	-	2.08	2080	4681.9	444.26
0.90	0.6	-	2.81	2810	4685.0	599.79
1.00	0.7	-	3.72	3720	4688.2	793.48
1.10	0.7	-	4.57	4570	4691.3	974.14
1.20	0.8	-	5.41	5410	4694.6	1152.39
1.30	0.9	-	6.05	6050	4697.8	1287.84
1.40	0.9	-	6.53	6530	4700.9	1389.10
1.50	1.0	-	6.86	6860	4704.2	1458.28
1.60	1.1	-	7.06	7060	4707.2	1499.82
1.70	1.1	-	7.19	7190	4710.5	1526.38
1.80	1.2	-	7.23	7230	4713.8	$\boxed{1533.80}$
1.91	1.3	-	7.17	7170	4717.1	1520.00
2.01	1.4	-	6.96	6960	4720.4	1474.46
2.10	1.4	-	6.61	6610	4723.4	1399.42
2.20	1.5	-	6.14	6140	4726.6	1299.04

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 24/12/2019
Sample No.#: S3-SC074A 20-12-2019 S85
Actual Depth (m): -
W.O. No.#: -
Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Specimen Details

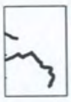
Diameter of specimen	mm	77.0	Wet mass of specimen	g	1312.1
Length of specimen	mm	152.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	711.07	Bulk density	Mg/m^3	1.85
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

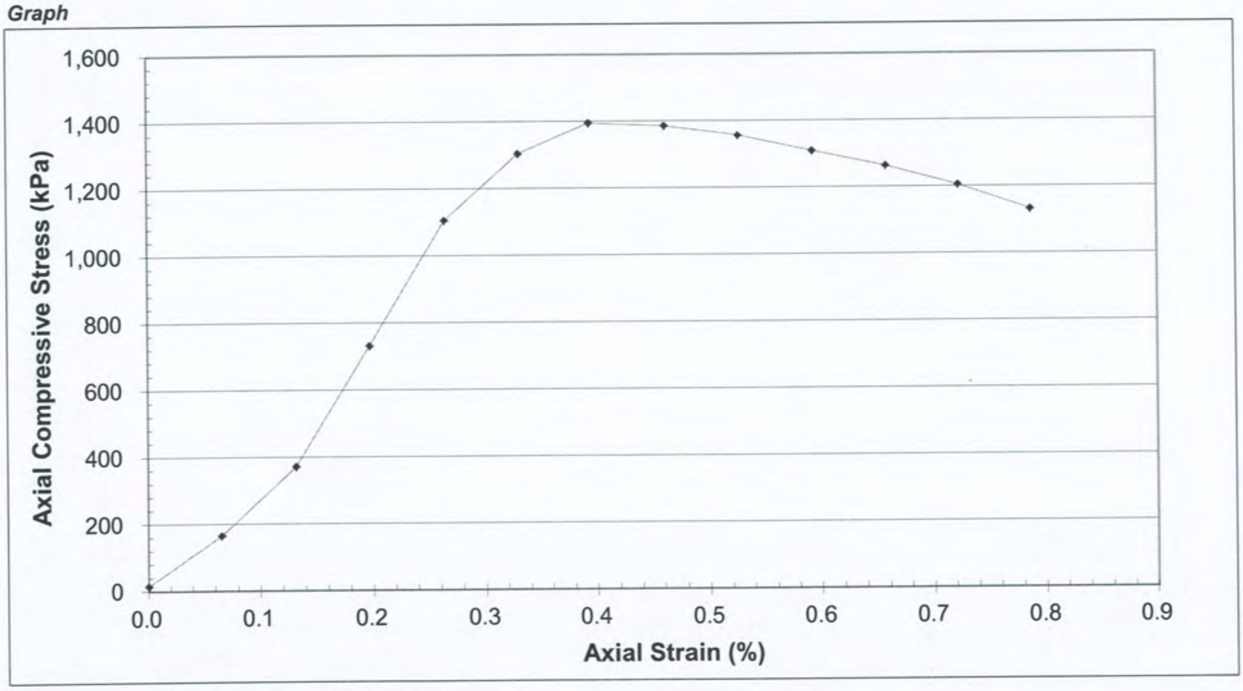
Visual Description: Olive grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1395	kPa	Sketch of failure conditions Inclination of shear surface 
Axial strain at failure	0.39	%	
Unconfined compressive strength, (q_u)	1395	kPa	

Graph



Remarks : Mixing Date : 14/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 24 December 2019

Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S85
Depth (m)#: -
Actual Depth (m): -
Date of Test: 24/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	152.7
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.07*	70	4656.6	15.03
0.10	0.1	-	*0.77*	770	4659.7	165.25
0.20	0.1	-	*1.73*	1730	4662.8	371.02
0.30	0.2	-	*3.41*	3410	4665.8	730.85
0.40	0.3	-	*5.16*	5160	4668.9	1105.17
0.50	0.3	-	*6.09*	6090	4672.0	1303.50
0.60	0.4	-	*6.52*	6520	4675.0	1394.64
0.70	0.5	-	*6.48*	6480	4678.2	1385.15
0.80	0.5	-	*6.35*	6350	4681.2	1356.48
0.91	0.6	-	*6.13*	6130	4684.4	1308.60
1.00	0.7	-	*5.92*	5920	4687.4	1262.95
1.10	0.7	-	*5.65*	5650	4690.5	1204.56
1.20	0.8	-	*5.31*	5310	4693.5	1131.34

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190230
Job No.: SHK190050
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 30-12-2019 S86
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 30/12/2019
W.O. No.#: -
Date Received: 30/12/2019

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.8	Wet mass of specimen	g	1278.7
Length of specimen	mm	156.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4753.9	Moisture content	%	-
Volume of specimen	cm^3	741.61	Bulk density	Mg/m^3	1.72
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

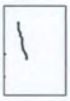
* Delete whichever is inappropriate

Visual Description: Brownish grey dappled white sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

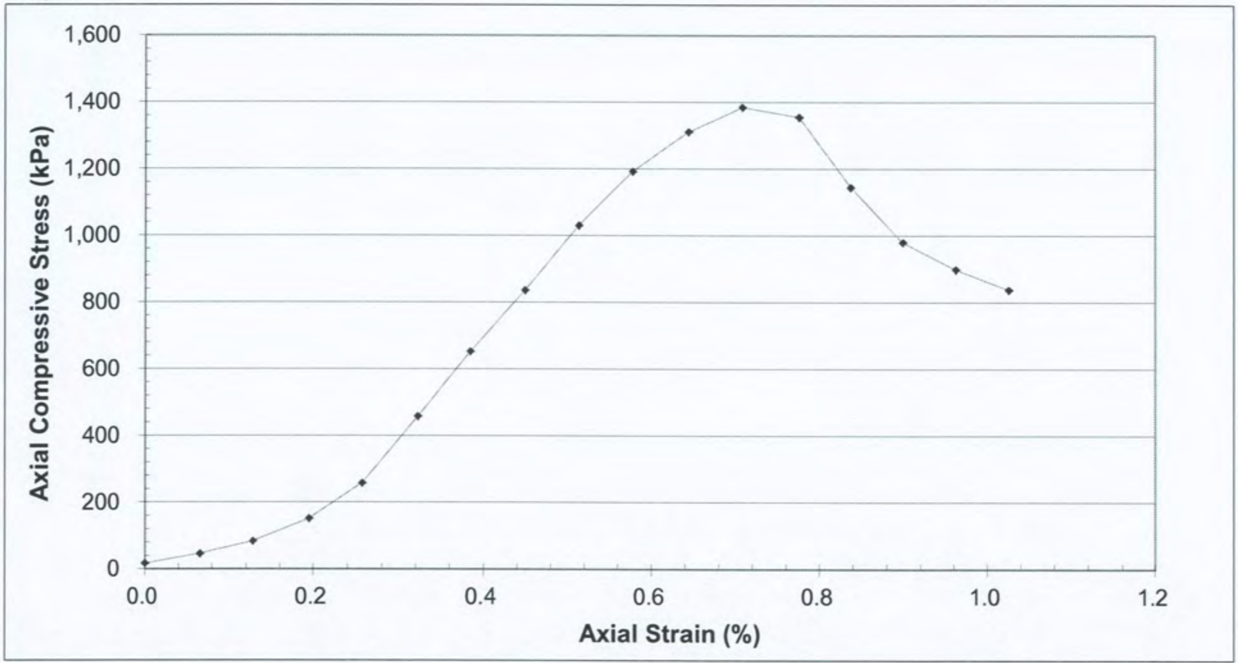
Compression Results

Maximum axial stress	1385	kPa
Axial strain at failure	0.71	%
Unconfined compressive strength, (q_u)	1385	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 16/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 30 December 2019

Certified by :
HUI King Fai

Date : 2 January 2020

Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190230
Job No.: SHK190050
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 30-12-2019 S86
Depth (m)#: -
Actual Depth (m): -
Date of Test: 30/12/2019
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 30/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	156.0
		Original area (A_o)	mm²	4753.9

The compression was terminated at 1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm²)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4753.9	16.83
0.10	0.1	-	0.22	220	4757.0	46.25
0.20	0.1	-	0.40	400	4760.0	84.03
0.30	0.2	-	0.72	720	4763.2	151.16
0.40	0.3	-	1.23	1230	4766.1	258.07
0.50	0.3	-	2.18	2180	4769.3	457.09
0.60	0.4	-	3.11	3110	4772.2	651.69
0.70	0.4	-	3.99	3990	4775.3	835.54
0.80	0.5	-	4.92	4920	4778.4	1029.63
0.90	0.6	-	5.70	5700	4781.5	1192.09
1.01	0.6	-	6.27	6270	4784.7	1310.42
1.11	0.7	-	6.63	6630	4787.8	1384.77
1.21	0.8	-	6.49	6490	4791.1	1354.61
1.31	0.8	-	5.49	5490	4794.0	1145.18
1.40	0.9	-	4.70	4700	4797.0	979.78
1.50	1.0	-	4.31	4310	4800.1	897.90
1.60	1.0	-	4.02	4020	4803.2	836.95

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200006
Job No.: SHK200003
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 08-01-2020 S87
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 8/1/2020
W.O. No.#: -
Date Received: 8/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1254.9
Length of specimen	mm	151.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	712.86	Bulk density	Mg/m^3	1.76
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

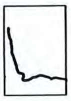
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

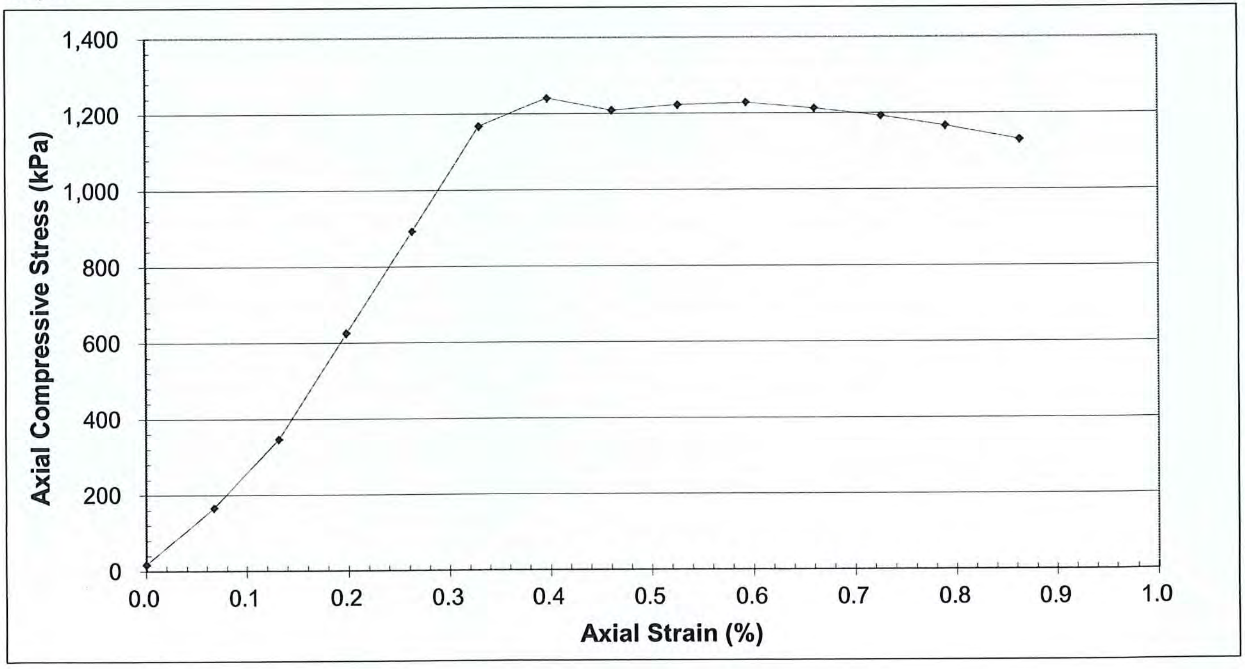
Compression Results

Maximum axial stress	1242	kPa
Axial strain at failure	0.40	%
Unconfined compressive strength, (q_u)	1242	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 16/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 8 January 2020

Date : 9 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200006
Job No.: SHK200003
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 8/1/2020
Sample No.#: S3-SC074A 08-01-2020 S87
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 8/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	151.9
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 0.9% of axial strain and the peak axial compressive stress is reached at 0.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4693.0	17.05
0.10	0.1	-	0.78	780	4696.1	166.09
0.20	0.1	-	1.63	1630	4699.2	346.87
0.30	0.2	-	2.94	2940	4702.3	625.23
0.40	0.3	-	4.20	4200	4705.4	892.60
0.50	0.3	-	5.50	5500	4708.5	1168.10
0.60	0.4	-	5.85	5850	4711.7	$\boxed{1241.59}$
0.70	0.5	-	5.70	5700	4714.7	1208.97
0.80	0.5	-	5.77	5770	4717.8	1223.02
0.90	0.6	-	5.80	5800	4721.0	1228.55
1.00	0.7	-	5.73	5730	4724.2	1212.90
1.10	0.7	-	5.64	5640	4727.3	1193.06
1.20	0.8	-	5.52	5520	4730.4	1166.93
1.31	0.9	-	5.35	5350	4733.9	1130.15

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 20-12-2019 S88
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 27/12/2019
W.O. No.#: -
Date Received: 20/12/2019

Information provided by Client

Specimen Details

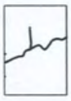
Diameter of specimen	mm	77.0	Wet mass of specimen	g	1296.2
Length of specimen	mm	154.4	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	718.98	Bulk density	Mg/m^3	1.80
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

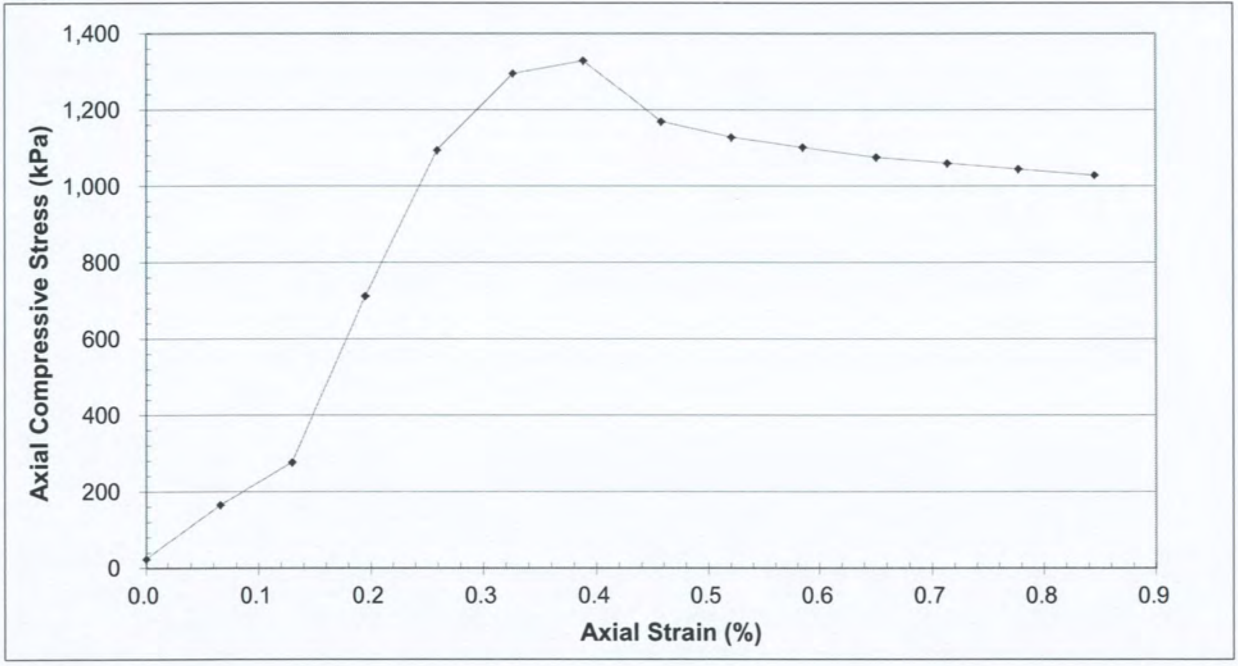
Visual Description: Dark grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1328	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.39	%	
Unconfined compressive strength, (q_u)	1328	kPa	

Graph



Remarks : Mixing Date : 17/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by : HUI King Fai

Date : 27 December 2019

Date : 2 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0190224
Job No.: SHK190048
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 27/12/2019
Sample No.#: S3-SC074A 20-12-2019 S88
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 20/12/2019

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	154.4
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 0.8% of axial strain and the peak axial compressive stress is reached at 0.4%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.11	110	4656.6	23.62
0.10	0.1	-	0.77	770	4659.7	165.25
0.20	0.1	-	1.29	1290	4662.7	276.67
0.30	0.2	-	3.32	3320	4665.7	711.57
0.40	0.3	-	5.11	5110	4668.7	1094.52
0.50	0.3	-	6.05	6050	4671.9	1294.98
0.60	0.4	-	6.21	6210	4674.8	1328.40
0.71	0.5	-	5.47	5470	4678.0	1169.29
0.80	0.5	-	5.28	5280	4681.0	1127.96
0.90	0.6	-	5.16	5160	4684.0	1101.62
1.01	0.7	-	5.04	5040	4687.1	1075.28
1.10	0.7	-	4.97	4970	4690.1	1059.68
1.20	0.8	-	4.90	4900	4693.1	1044.09
1.31	0.8	-	4.83	4830	4696.3	1028.46

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E-mail : sst@soilservices.com.hk
HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S89
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

Specimen Details

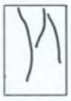
Diameter of specimen	mm	77.2	Wet mass of specimen	g	1196.3
Length of specimen	mm	149.1	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	697.91	Bulk density	Mg/m^3	1.71
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

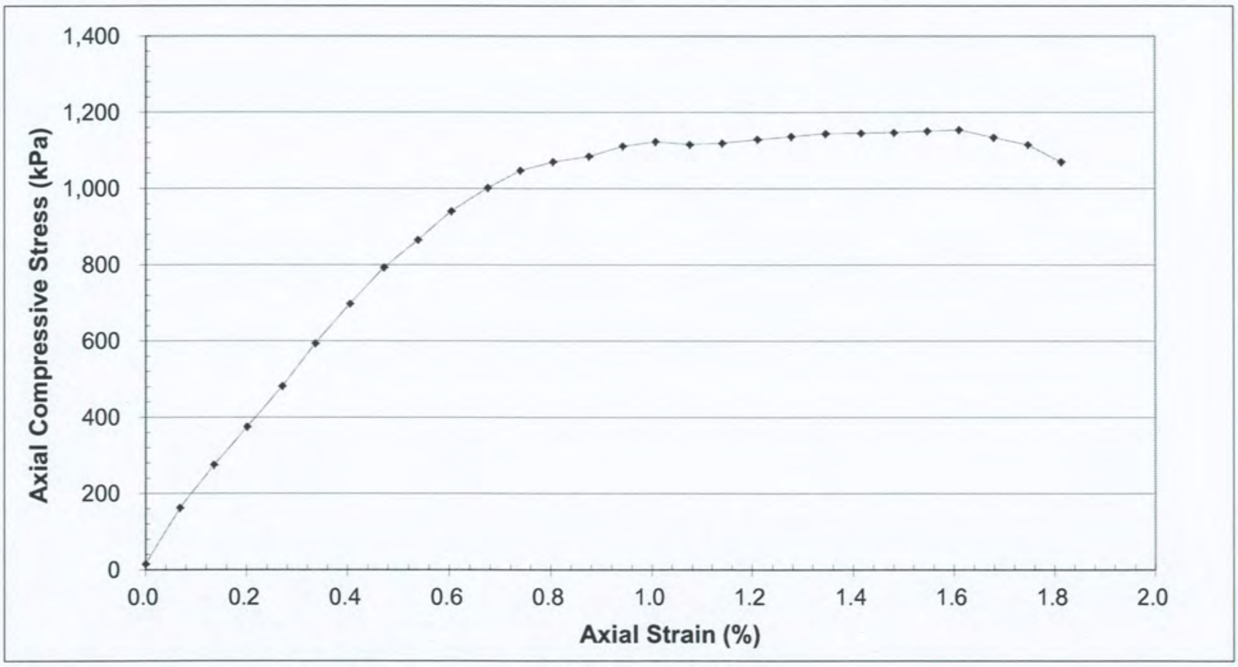
Visual Description: Greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1154	kPa	Sketch of failure conditions Inclination of shear surface 
Axial strain at failure	1.6	%	
Unconfined compressive strength, (q_u)	1154	kPa	

Graph



Remarks : Mixing Date : 18/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 January 2020

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S89
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	149.1
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.8% of axial strain and the peak axial compressive stress is reached at 1.6%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4680.8	14.95
0.10	0.1	-	0.76	760	4684.0	162.25
0.20	0.1	-	1.29	1290	4687.2	275.22
0.30	0.2	-	1.76	1760	4690.3	375.24
0.40	0.3	-	2.26	2260	4693.5	481.51
0.50	0.3	-	2.79	2790	4696.6	594.04
0.60	0.4	-	3.28	3280	4699.9	697.89
0.70	0.5	-	3.73	3730	4703.1	793.10
0.80	0.5	-	4.07	4070	4706.2	864.82
0.90	0.6	-	4.43	4430	4709.3	940.69
1.01	0.7	-	4.72	4720	4712.7	1001.55
1.10	0.7	-	4.94	4940	4715.7	1047.56
1.20	0.8	-	5.05	5050	4718.9	1070.17
1.31	0.9	-	5.12	5120	4722.2	1084.24
1.41	0.9	-	5.25	5250	4725.4	1111.02
1.50	1.0	-	5.31	5310	4728.5	1122.97
1.60	1.1	-	5.28	5280	4731.8	1115.87
1.70	1.1	-	5.30	5300	4734.9	1119.35
1.81	1.2	-	5.35	5350	4738.2	1129.11
1.91	1.3	-	5.39	5390	4741.4	1136.79
2.01	1.3	-	5.43	5430	4744.7	1144.44
2.11	1.4	-	5.44	5440	4748.1	1145.73
2.21	1.5	-	5.45	5450	4751.2	1147.07
2.31	1.5	-	5.47	5470	4754.4	1150.50
2.40	1.6	-	5.49	5490	4757.5	$\boxed{1153.97}$
2.50	1.7	-	5.40	5400	4760.8	1134.26
2.61	1.7	-	5.31	5310	4764.1	1114.59
2.70	1.8	-	5.10	5100	4767.3	1069.79

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200013
Job No.: SHK200005
Page: 1 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: S3-SC074A 15-01-2020 S90
Sample Type[#]: PT75
Depth (m)[#]: -
Actual Depth (m): -
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 15/1/2020
W.O. No.[#]: -
Date Received: 15/1/2020

[#] Information provided by Client

Specimen Details

Diameter of specimen	mm	77.2	Wet mass of specimen	g	1142.0
Length of specimen	mm	146.7	Dry mass of specimen	g	-
Area of specimen	mm^2	4680.8	Moisture content	%	-
Volume of specimen	cm^3	686.68	Bulk density	Mg/m^3	1.66
Particle density (assumed/~~measured~~)[*]	Mg/m^3	2.65	Dry density	Mg/m^3	-

[*] Delete whichever is inappropriate

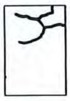
Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

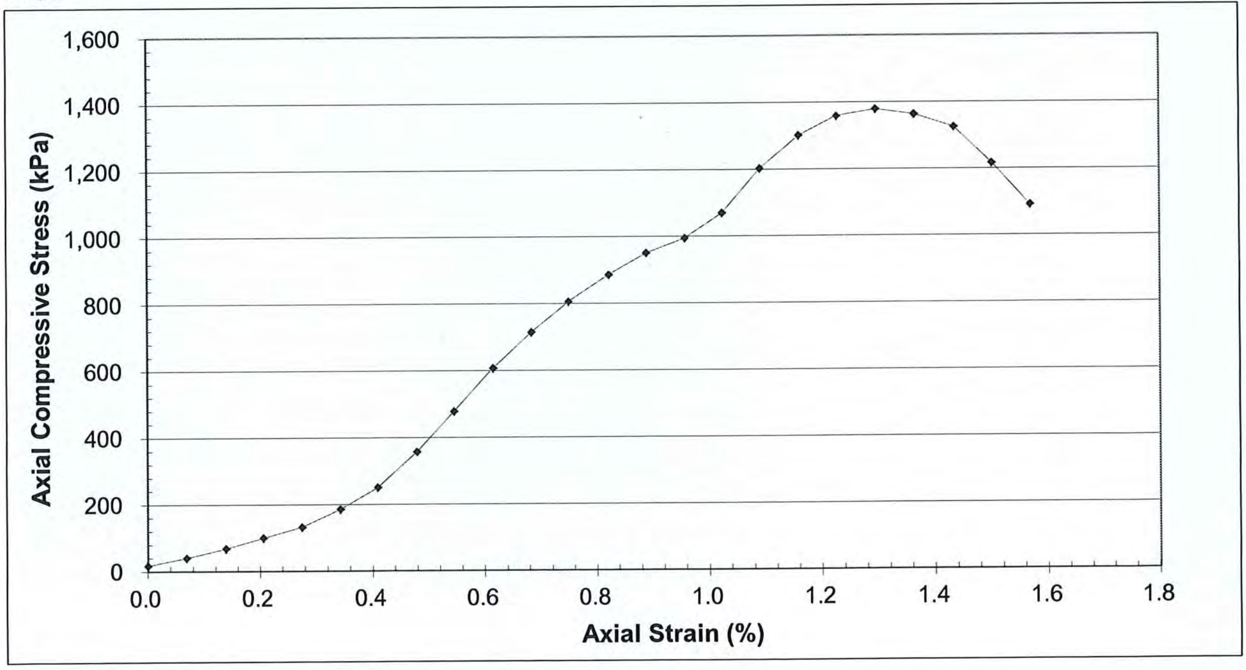
Compression Results

Maximum axial stress	1379	kPa
Axial strain at failure	1.3	%
Unconfined compressive strength, (q_u)	1379	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 18/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 15 January 2020

Certified by :
HUI King Fai

Date : 18 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200013
Job No.: SHK200005
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 15-01-2020 S90
Depth (m)#: -
Actual Depth (m): -
Date of Test: 15/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 15/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	146.7
		Original area (A_o)	mm^2	4680.8

The compression was terminated at 1.6% of axial strain and the peak axial compressive stress is reached at 1.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4680.8	17.09
0.10	0.1	-	0.19	190	4684.0	40.56
0.20	0.1	-	0.32	320	4687.3	68.27
0.30	0.2	-	0.47	470	4690.5	100.20
0.40	0.3	-	0.62	620	4693.7	132.09
0.50	0.3	-	0.87	870	4697.0	185.23
0.60	0.4	-	1.18	1180	4700.1	251.06
0.70	0.5	-	1.68	1680	4703.4	357.19
0.80	0.5	-	2.25	2250	4706.5	478.06
0.90	0.6	-	2.86	2860	4709.8	607.24
1.00	0.7	-	3.37	3370	4713.1	715.03
1.10	0.7	-	3.80	3800	4716.2	805.73
1.21	0.8	-	4.18	4180	4719.6	885.66
1.30	0.9	-	4.49	4490	4722.8	950.70
1.41	1.0	-	4.70	4700	4726.1	994.48
1.50	1.0	-	5.06	5060	4729.3	1069.93
1.60	1.1	-	5.69	5690	4732.5	1202.33
1.70	1.2	-	6.16	6160	4735.8	1300.73
1.80	1.2	-	6.44	6440	4739.0	1358.93
1.90	1.3	-	6.54	6540	4742.3	$\boxed{1379.07}$
2.00	1.4	-	6.47	6470	4745.6	1363.37
2.11	1.4	-	6.29	6290	4749.0	1324.49
2.20	1.5	-	5.78	5780	4752.2	1216.28
2.30	1.6	-	5.19	5190	4755.5	1091.37

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HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S91
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1200.5
Length of specimen	mm	149.2	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	692.97	Bulk density	Mg/m^3	1.73
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

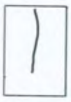
* Delete whichever is inappropriate

Visual Description: Greyish brown sandy SILT/CLAY with Cement

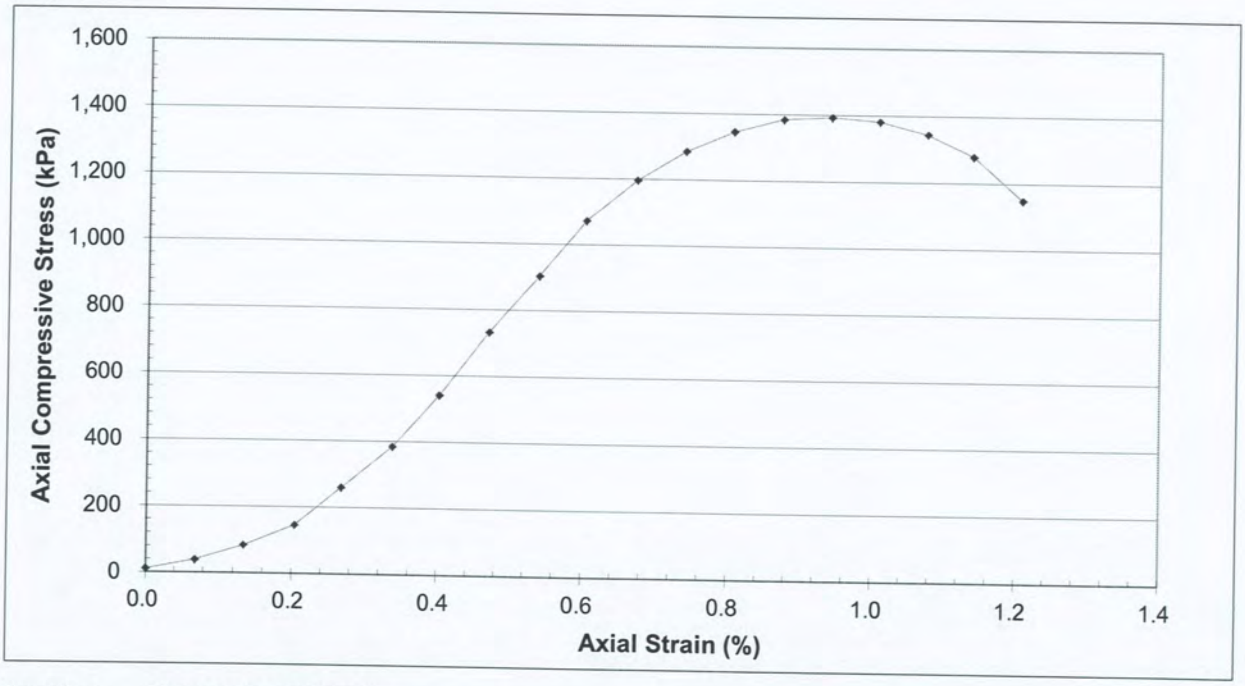
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1393	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.94	%	
Unconfined compressive strength, (q_u)	1393	kPa	



Graph



Remarks : Mixing Date : 19/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 January 2020

Certified by : HUI King Fai

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S91
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	149.2
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 1.2% of axial strain and the peak axial compressive stress is reached at 0.9%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	*0.05*	50	4644.5	10.77
0.10	0.1	-	*0.18*	180	4647.7	38.73
0.20	0.1	-	*0.39*	390	4650.8	83.86
0.30	0.2	-	*0.68*	680	4654.0	146.11
0.40	0.3	-	*1.21*	1210	4657.0	259.82
0.50	0.3	-	*1.79*	1790	4660.3	384.10
0.60	0.4	-	*2.52*	2520	4663.3	540.39
0.70	0.5	-	*3.42*	3420	4666.5	732.88
0.81	0.5	-	*4.22*	4220	4669.7	903.69
0.90	0.6	-	*5.01*	5010	4672.8	1072.17
1.00	0.7	-	*5.59*	5590	4676.0	1195.47
1.10	0.7	-	*6.01*	6010	4679.2	1284.42
1.20	0.8	-	*6.30*	6300	4682.3	1345.49
1.31	0.9	-	*6.49*	6490	4685.5	1385.12
1.41	0.9	-	*6.53*	6530	4688.7	$\boxed{1392.71}$
1.50	1.0	-	*6.48*	6480	4691.8	1381.12
1.60	1.1	-	*6.31*	6310	4695.0	1343.98
1.70	1.1	-	*6.01*	6010	4698.1	1279.25
1.80	1.2	-	*5.40*	5400	4701.3	1148.61

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S92
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.1	Wet mass of specimen	g	1177.0
Length of specimen	mm	150.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4668.7	Moisture content	%	-
Volume of specimen	cm^3	700.31	Bulk density	Mg/m^3	1.68
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

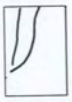
* Delete whichever is inappropriate

Visual Description: Greyish brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

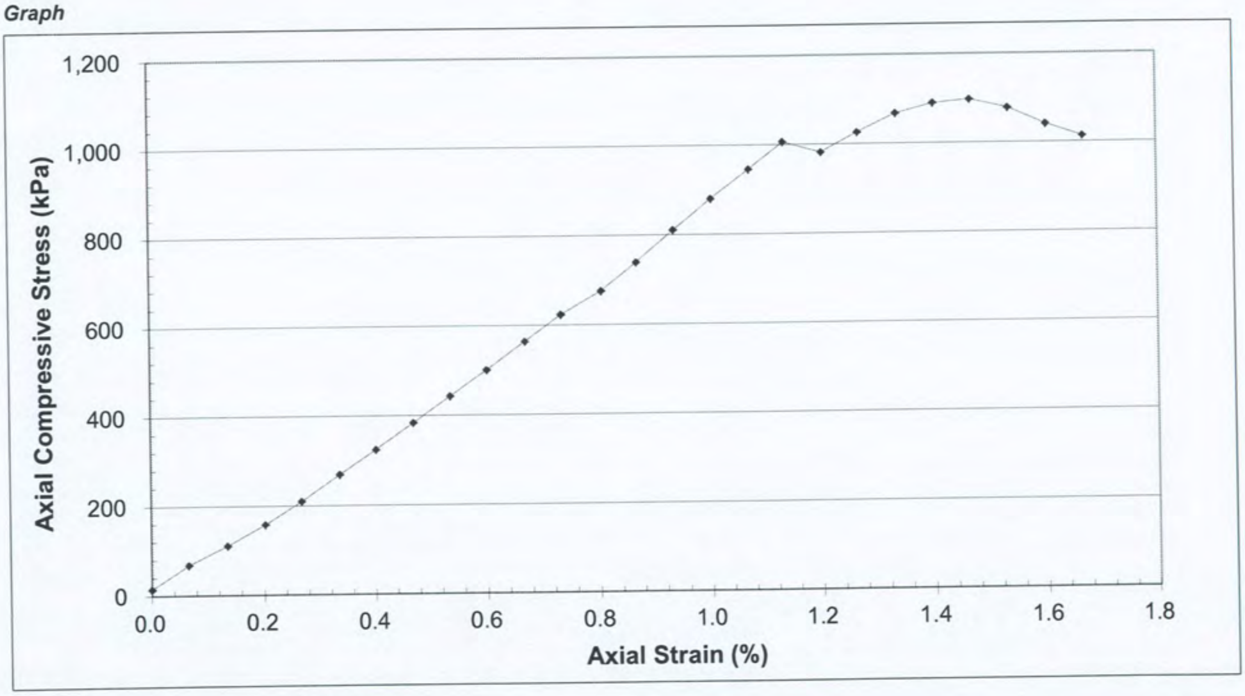
Compression Results

Maximum axial stress	1097	kPa
Axial strain at failure	1.5	%
Unconfined compressive strength, (q_u)	1097	kPa

Sketch of failure conditions
Inclination of shear surface



Graph



Remarks : Mixing Date : 19/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 January 2020

Certified by :
HUI King Fai

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: S3-SC074A 13-01-2020 S92
Depth (m)[#]: -
Actual Depth (m): -
Date of Test: 13/1/2020
W.O. No.[#]: -

Sample Type[#]: PT75
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/1/2020

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	150.0
		Original area (A_o)	mm^2	4668.7

The compression was terminated at 1.7% of axial strain and the peak axial compressive stress is reached at 1.5%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4668.7	14.99
0.10	0.1	-	0.32	320	4671.8	68.50
0.20	0.1	-	0.52	520	4675.0	111.23
0.30	0.2	-	0.74	740	4678.2	158.18
0.40	0.3	-	0.98	980	4681.2	209.35
0.50	0.3	-	1.26	1260	4684.4	268.98
0.60	0.4	-	1.52	1520	4687.5	324.26
0.70	0.5	-	1.80	1800	4690.7	383.74
0.80	0.5	-	2.08	2080	4693.9	443.13
0.90	0.6	-	2.35	2350	4696.9	500.33
1.00	0.7	-	2.65	2650	4700.2	563.81
1.10	0.7	-	2.93	2930	4703.2	622.98
1.21	0.8	-	3.18	3180	4706.6	675.65
1.30	0.9	-	3.48	3480	4709.6	738.92
1.40	0.9	-	3.82	3820	4712.8	810.56
1.50	1.0	-	4.15	4150	4716.0	879.99
1.61	1.1	-	4.46	4460	4719.3	945.06
1.70	1.1	-	4.75	4750	4722.2	1005.88
1.80	1.2	-	4.64	4640	4725.5	981.90
1.90	1.3	-	4.85	4850	4728.7	1025.66
2.00	1.3	-	5.05	5050	4731.9	1067.22
2.10	1.4	-	5.16	5160	4735.1	1089.73
2.20	1.5	-	5.20	5200	4738.2	1097.46
2.30	1.5	-	5.11	5110	4741.5	1077.72
2.40	1.6	-	4.94	4940	4744.7	1041.15
2.50	1.7	-	4.81	4810	4748.0	1013.07

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S93
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

Specimen Details

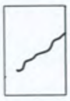
Diameter of specimen	mm	77.0	Wet mass of specimen	g	1160.0
Length of specimen	mm	148.6	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	691.97	Bulk density	Mg/m^3	1.68
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

* Delete whichever is inappropriate

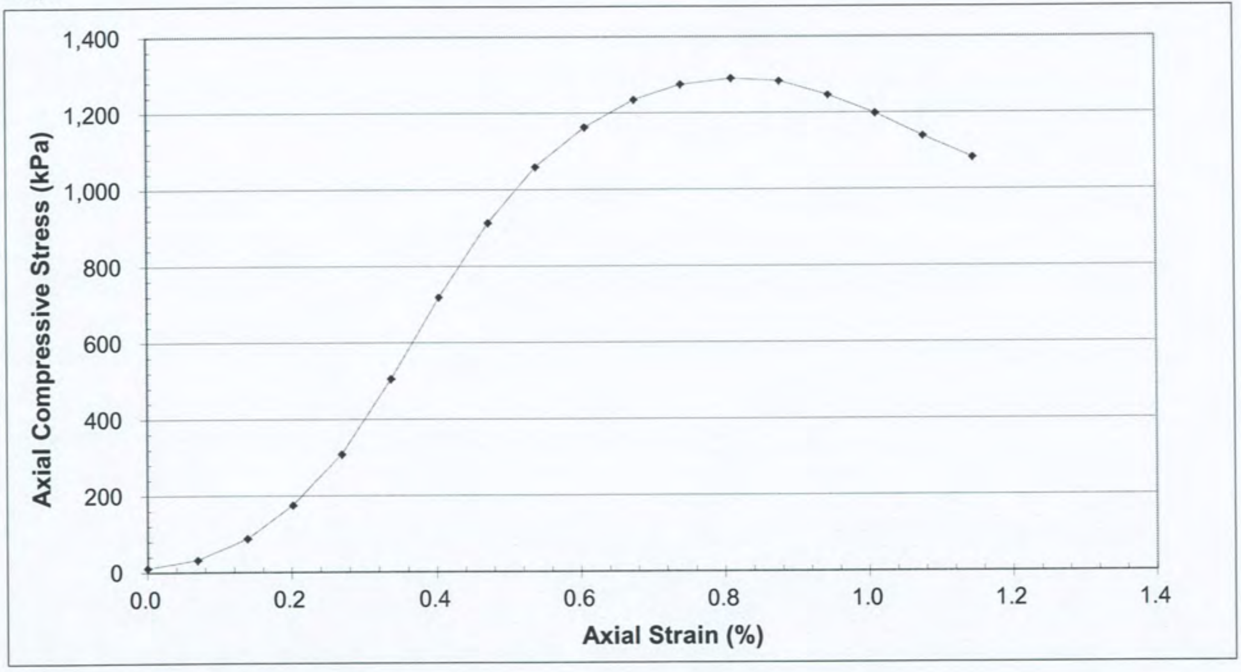
Visual Description: Greyish brown sandy SILT/CLAY with Cement

Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1291	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	0.81	%		
Unconfined compressive strength, (q_u)	1291	kPa		

Graph



Remarks : Mixing Date : 19/12/2019

Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 January 2020

Certified by : HUI King Fai

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
13-01-2020 S93
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	148.6
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.8%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4656.6	10.74
0.10	0.1	-	0.15	150	4659.9	32.19
0.21	0.1	-	0.41	410	4663.1	87.92
0.30	0.2	-	0.82	820	4666.0	175.74
0.40	0.3	-	1.44	1440	4669.2	308.40
0.50	0.3	-	2.36	2360	4672.4	505.10
0.60	0.4	-	3.36	3360	4675.5	718.64
0.70	0.5	-	4.27	4270	4678.7	912.64
0.80	0.5	-	4.96	4960	4681.9	1059.41
0.90	0.6	-	5.45	5450	4685.1	1163.26
1.00	0.7	-	5.79	5790	4688.3	1234.99
1.10	0.7	-	5.98	5980	4691.4	1274.67
1.21	0.8	-	6.06	6060	4694.7	$\boxed{1290.82}$
1.30	0.9	-	6.03	6030	4697.9	1283.57
1.41	0.9	-	5.86	5860	4701.1	1246.52
1.50	1.0	-	5.64	5640	4704.2	1198.94
1.60	1.1	-	5.36	5360	4707.3	1138.65
1.70	1.1	-	5.10	5100	4710.6	1082.66

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Report on Unconfined Compression Test - Summary of Soil Properties

Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S94
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

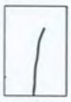
Specimen Details

Diameter of specimen	mm	76.9	Wet mass of specimen	g	1187.9
Length of specimen	mm	148.9	Dry mass of specimen	g	-
Area of specimen	mm^2	4644.5	Moisture content	%	-
Volume of specimen	cm^3	691.57	Bulk density	Mg/m^3	1.72
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

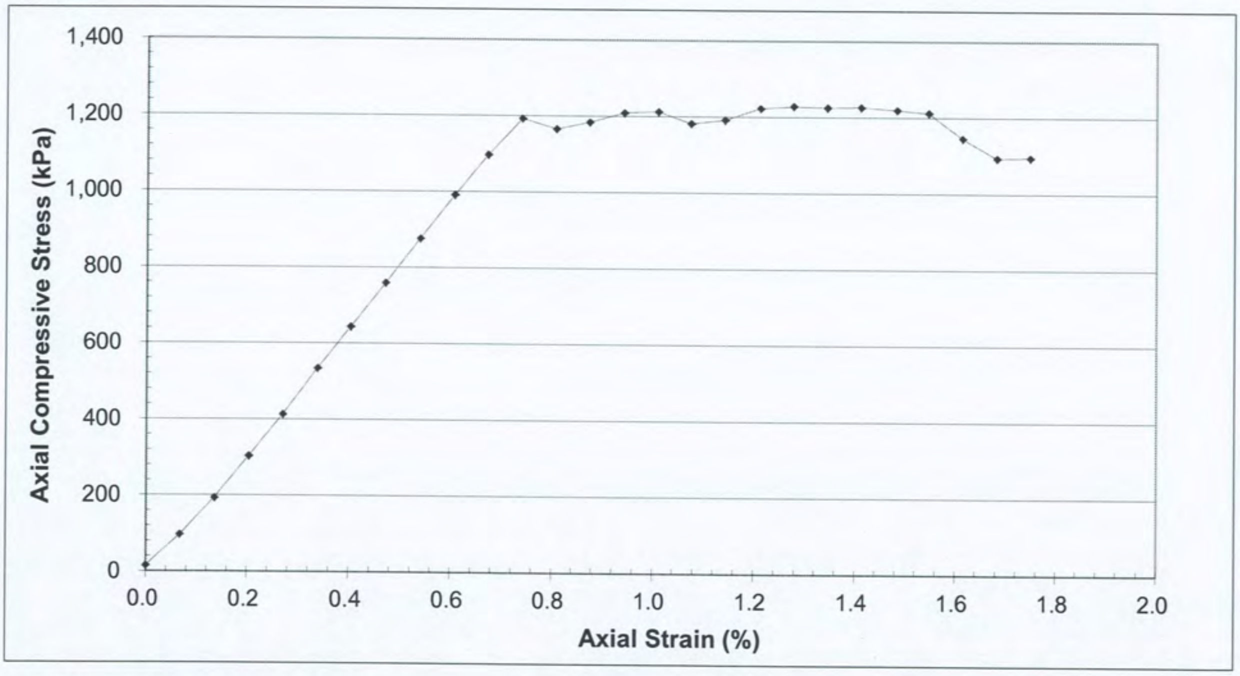
* Delete whichever is inappropriate

Visual Description: Brownish grey sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1229	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.3	%		
Unconfined compressive strength, (q_u)	1229	kPa		

Graph



Remarks : Mixing Date : 20/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Date : 13 January 2020

Certified by :
HUI King Fai

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Depth (m)#: -
Date of Test: 13/1/2020
Sample No.#: S3-SC074A 13-01-2020 S94
Actual Depth (m): -
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	148.9
		Original area (A_o)	mm^2	4644.5

The compression was terminated at 1.7% of axial strain and the peak axial compressive stress is reached at 1.3%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.07	70	4644.5	15.07
0.10	0.1	-	0.45	450	4647.7	96.82
0.20	0.1	-	0.90	900	4650.8	193.51
0.30	0.2	-	1.41	1410	4654.0	302.96
0.40	0.3	-	1.92	1920	4657.1	412.27
0.50	0.3	-	2.49	2490	4660.3	534.30
0.60	0.4	-	3.00	3000	4663.3	643.32
0.70	0.5	-	3.54	3540	4666.5	758.60
0.80	0.5	-	4.09	4090	4669.7	875.86
0.90	0.6	-	4.63	4630	4672.9	990.82
1.00	0.7	-	5.13	5130	4676.0	1097.09
1.10	0.7	-	5.58	5580	4679.2	1192.52
1.20	0.8	-	5.46	5460	4682.4	1166.08
1.30	0.9	-	5.55	5550	4685.5	1184.50
1.40	0.9	-	5.67	5670	4688.7	1209.29
1.50	1.0	-	5.69	5690	4691.9	1212.72
1.60	1.1	-	5.55	5550	4695.0	1182.10
1.70	1.1	-	5.60	5600	4698.2	1191.95
1.80	1.2	-	5.75	5750	4701.5	1223.01
1.90	1.3	-	5.78	5780	4704.6	$\boxed{1228.58}$
2.00	1.3	-	5.77	5770	4707.8	1225.62
2.10	1.4	-	5.78	5780	4711.0	1226.91
2.21	1.5	-	5.75	5750	4714.4	1219.66
2.30	1.5	-	5.72	5720	4717.5	1212.51
2.40	1.6	-	5.41	5410	4720.7	1146.02
2.50	1.7	-	5.17	5170	4723.9	1094.42
2.60	1.7	-	5.18	5180	4727.1	1095.80

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HOKLAS 264 TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S95
Sample Type#: PT75
Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date of Test: 13/1/2020
W.O. No.#: -
Date Received: 13/1/2020

Information provided by Client

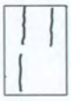
Specimen Details

Diameter of specimen	mm	77.0	Wet mass of specimen	g	1172.5
Length of specimen	mm	148.8	Dry mass of specimen	g	-
Area of specimen	mm^2	4656.6	Moisture content	%	-
Volume of specimen	cm^3	692.91	Bulk density	Mg/m^3	1.69
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

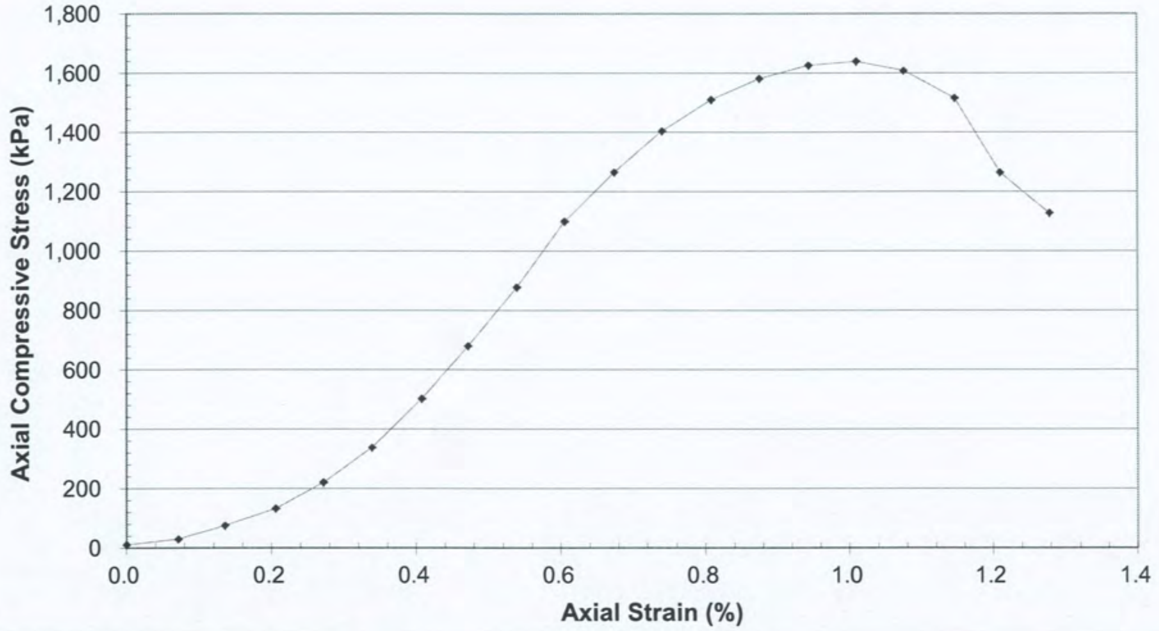
* Delete whichever is inappropriate

Visual Description: Greyish brown sandy SILT/CLAY with Cement
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1639	kPa	Sketch of failure conditions Inclination of shear surface	
Axial strain at failure	1.0	%		
Unconfined compressive strength, (q_u)	1639	kPa		

Graph



Remarks : Mixing Date : 20/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 13 January 2020

Date : 15 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200010
Job No.: SHK200004
Page: 2 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A 13-01-2020 S95
Depth (m)#: -
Actual Depth (m): -
Date of Test: 13/1/2020
W.O. No.#: -

Sample Type#: PT75
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 13/1/2020

Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	148.8
		Original area (A_o)	mm^2	4656.6

The compression was terminated at 1.3% of axial strain and the peak axial compressive stress is reached at 1.0%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.05	50	4656.6	10.74
0.11	0.1	-	0.14	140	4659.9	30.04
0.20	0.1	-	0.35	350	4663.0	75.06
0.31	0.2	-	0.62	620	4666.2	132.87
0.40	0.3	-	1.03	1030	4669.3	220.59
0.50	0.3	-	1.58	1580	4672.5	338.15
0.61	0.4	-	2.35	2350	4675.7	502.60
0.70	0.5	-	3.18	3180	4678.7	679.68
0.80	0.5	-	4.11	4110	4681.9	877.86
0.90	0.6	-	5.15	5150	4685.0	1099.25
1.00	0.7	-	5.93	5930	4688.2	1264.87
1.10	0.7	-	6.59	6590	4691.4	1404.70
1.20	0.8	-	7.09	7090	4694.6	1510.25
1.30	0.9	-	7.43	7430	4697.7	1581.61
1.40	0.9	-	7.64	7640	4701.0	1625.19
1.50	1.0	-	7.71	7710	4704.1	1638.98
1.60	1.1	-	7.57	7570	4707.2	1608.16
1.71	1.1	-	7.14	7140	4710.6	1515.72
1.80	1.2	-	5.96	5960	4713.7	1264.41
1.90	1.3	-	5.32	5320	4716.9	1127.85

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E-mail : sst@soilservices.com.hk
HOKLAS 264
TEST

Report on Unconfined Compression Test - Summary of Soil Properties
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200013
Job No.: SHK200005
Page: 1 of 2

Client#: Sang Hing - Kuly Joint Venture
Project#: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.#: -
Sample No.#: S3-SC074A
15-01-2020 S96
Sample Type#: PT75

Depth (m)#: -
Actual Depth (m): -
Sample Origin#: Contaminated soil mixed with 10% cement and 10% sand

Date of Test: 15/1/2020
W.O. No.#: -
Date Received: 15/1/2020

Information provided by Client

Specimen Details

Diameter of specimen	mm	77.3	Wet mass of specimen	g	1133.7
Length of specimen	mm	147.0	Dry mass of specimen	g	-
Area of specimen	mm^2	4693.0	Moisture content	%	-
Volume of specimen	cm^3	689.87	Bulk density	Mg/m^3	1.64
Particle density (assumed/~~measured~~)*	Mg/m^3	2.65	Dry density	Mg/m^3	-

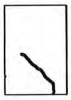
* Delete whichever is inappropriate

Visual Description: Dark greenish grey sandy SILT/CLAY with Cement

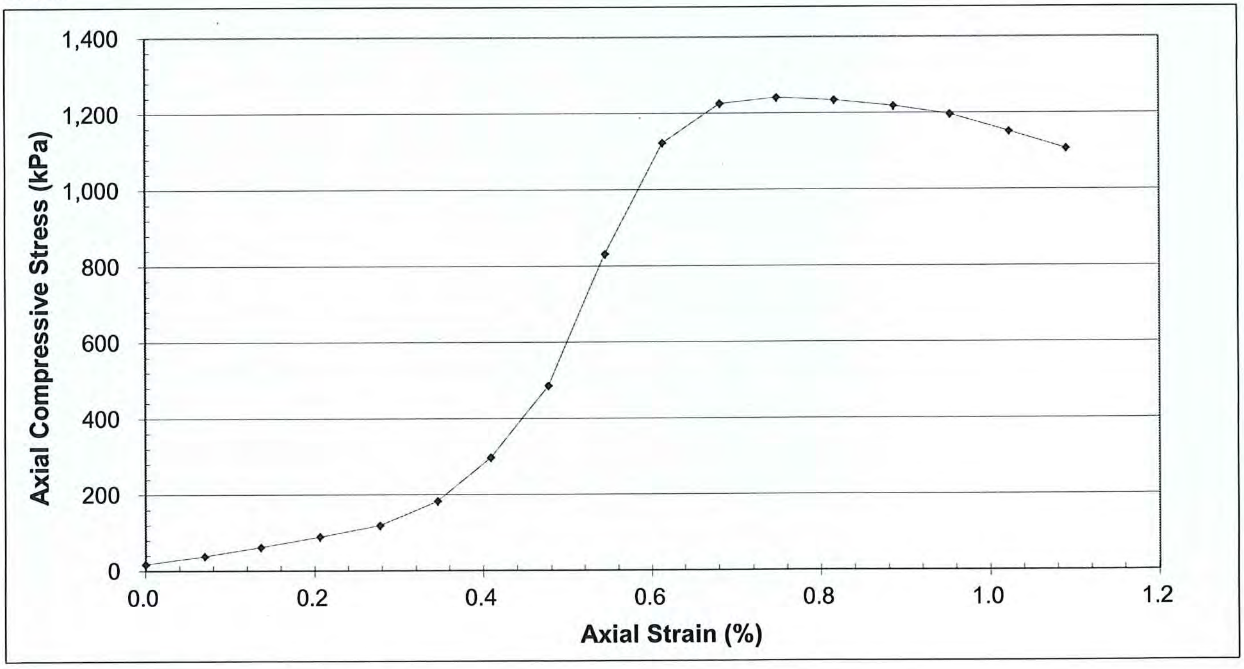
Particle size assessment before test: The size of the largest particle does not exceed 1/5 of the diameter of the specimen.

Compression Results

Maximum axial stress	1241	kPa	Sketch of failure conditions Inclination of shear surface
Axial strain at failure	0.75	%	
Unconfined compressive strength, (q_u)	1241	kPa	



Graph



Remarks : Mixing Date : 20/12/2019
Note: The results relate only to the tested sample as received.

Checked by : LAU Chun Ming

Certified by :
HUI King Fai

Date : 15 January 2020

Date : 18 January 2020

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Report on Unconfined Compression Test - Compression Data
Test Method: Determination of the Unconfined Compressive Strength (Load Frame Method)
Tested in Accordance with: BS1377-7:1990 Clause 7.2

Report No.: SLST0200013
Job No.: SHK200005
Page: 2 of 2

Client[#]: Sang Hing - Kuly Joint Venture
Project[#]: YL/2017/03 Development of Lok Ma Chau Loop - Land Decontamination and Advance Engineering Works

Hole No.[#]: -
Sample No.[#]: S3-SC074A 15-01-2020 S96
Depth (m)[#]: -
Actual Depth (m): -
Date of Test: 15/1/2020
W.O. No.[#]: -

Sample Type[#]: PT75
Sample Origin[#]: Contaminated soil mixed with 10% cement and 10% sand
Date Received: 15/1/2020

[#] Information provided by Client

Machine No.	TM10	Rate of deformation	mm/min	1.00
Deformation gauge No.	TM10-PR-DT50	Deformation gauge constant	mm/digit	0.001
Proving Ring No.	-	Proving Ring constant	kN/mm	-
Force Transducer No.	SUC-LC01A	Original length (L_o)	mm	147.0
		Original area (A_o)	mm^2	4693.0

The compression was terminated at 1.1% of axial strain and the peak axial compressive stress is reached at 0.7%.

Termination criterion: Terminate the test after the peak axial compressive stress is reached or at an axial strain of at least 20%, whichever occurs first.

Raw data are printed in Italic

Axial Deformation Reading (mm)	Axial Strain ε (%)	*Proving Ring Gauge Reading (mm)*	*Load Cell Reading (kN)*	Axial Force P (N)	Cross-section Area A (mm^2)	Axial Compressive Stress σ_1 (kPa)
0.00	0.0	-	0.08	80	4693.0	17.05
0.10	0.1	-	0.18	180	4696.3	38.33
0.20	0.1	-	0.29	290	4699.4	61.71
0.30	0.2	-	0.42	420	4702.7	89.31
0.41	0.3	-	0.56	560	4706.0	119.00
0.51	0.3	-	0.86	860	4709.3	182.62
0.60	0.4	-	1.40	1400	4712.2	297.10
0.70	0.5	-	2.29	2290	4715.5	485.64
0.80	0.5	-	3.92	3920	4718.7	830.74
0.90	0.6	-	5.30	5300	4722.0	1122.42
1.00	0.7	-	5.79	5790	4725.2	1225.34
1.10	0.7	-	5.87	5870	4728.4	1241.44
1.20	0.8	-	5.84	5840	4731.6	1234.24
1.30	0.9	-	5.77	5770	4735.0	1218.60
1.40	1.0	-	5.67	5670	4738.2	1196.66
1.50	1.0	-	5.46	5460	4741.5	1151.54
1.60	1.1	-	5.25	5250	4744.8	1106.49

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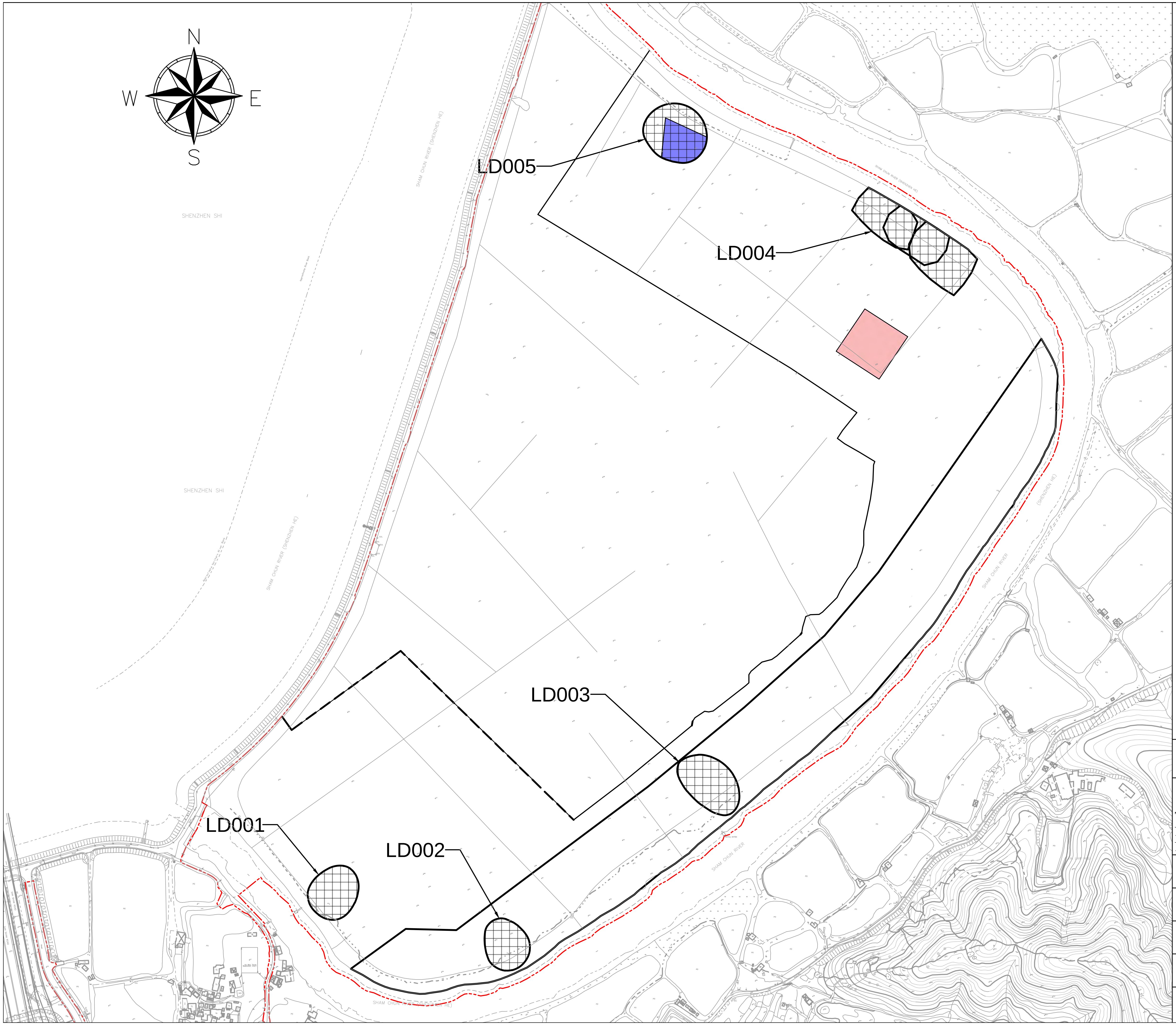
Appendix E TREATED SOIL TEMPORARY AND PERMANENT LOCATION PLAN


N
W
E
S
LD005
LD004
LD003
LD002
LD001
SHENZHEN SHI
SHENZHEN SHI
SHAM CHUN RIVER (SHENZHEN HE)
SHAM CHUN RIVER (SHENZHEN HE)
SHAM CHUN RIVER

LEGEND:

▦	PROPOSED LAND DECONTAMINATION AREA
🟥	TEMPORARY STORAGE AREA VOLUME : 9098 m3 (ALREADY STOCKPILED IN DEC 2019)
🟦	PERMANENT STORAGE AREA VOLUME : 9098 m3 (AREA : 2580 m2 at +1.5mPD to +5.03mPD) (TO BE BACKFILLED BETWEEN JUN AND AUG 2020)

生興 － 豐利聯營
Sang Hing – Kuly Joint Venture

DRG. TITLE
圖紙標題
TEMPORARY AND PERMANENT LOCATION PLAN FOR LD003-TREATED SOIL

DRG. NO.
圖紙編號 SKJV/AP/STO/LD003

CONTRACT NO. 合約編號 YL/2017/03	DATE OF ISSUE 發出日期 06/01/2020	
CHECKED BY 覆核 ALEX PO	DRAWN BY 繪圖 LEO CHUNG	
SCALE 比例 1:5000@A3	SURVEY DATE 測量日期 04/01/2020	
DIMENSIONS ARE IN 單位尺寸 METRES	PAPER SIZE 圖紙尺寸 A3	STATUS 階段

Appendix F PHOTOGRAPHICAL RECORD

Photographical Record

	YL/2017/03 Sample Collection for Confirmatory Test at LD003 – H15 16/10/2019 16/10/2019
Photo 1 Mixing area of contaminated soil	Photo 2 Soil sample collected at LD-003
YL 2017/03 Samples Collection for Confirmatory test at LD003 - H12 17/10/2019 H12 17/10/2019	
Photo 3 Confirmatory sampling at LD-003	Photo 4 Condition of temporary backfilled treated soil

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